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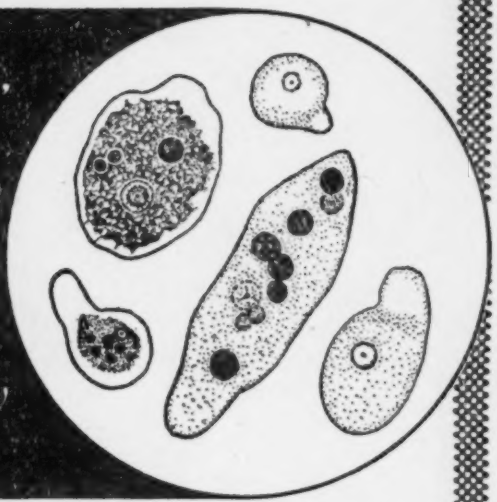

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SUPPLEMENT
Journal of the Indian Medical Association

VOL. XXI, No. 1 CALCUTTA OCTOBER, 1951

I.M.A., WORKING COMMITTEE—Proceedings of the 40th Meeting of the Working Committee of the Indian Medical Association held at Hyderabad-Dn. on 7th and 8th July, 1951.

Members Present:

(a) *Ex-Officio*—1. Dr. T. N. Banerjee (Patna), President (in the chair), 2. Dr. Chamanlal M. Mehta (Bombay), Immediate Past President, 3. Dr. A. K. Sen (Calcutta), Senior Vice-President, 4. Dr. S. C. Sen (Delhi), Hony. General Secretary, 5. Dr. H. R. Dawar (Delhi), Treasurer, 6. Dr. R. Sinha (Calcutta), Hony. Joint Secretary, 7. Dr. A. P. Mittra (Delhi), Hony. Joint Secretary, 8. Dr. A. D. Mukharji (Calcutta), Editor, Journal, I.M.A.

(b) *Representatives from the Provincial Branches*—9. Dr. B. Tirumal Rao, 10. Dr. K. Viswanandha Rao,—Andhra Provincial Branch; 11. Dr. K. K. Sen Gupta (In place of Dr. A. C. Ukil), 12. Dr. A. N. Roy (In place of Dr. P. K. Chatterjee), 13. Dr. T. N. Ghosh (In place of Dr. J. Mojumdar), 14. Dr. M. K. Roy Chowdhury—Bengal Provincial Branch; 15. Dr. B. R. Nayen, 16. Dr. C. S. Thakkar—Bombay Provincial Branch; 17. Dr. S. Samaddar, 18. Dr. Miss M. P. John (In place of Dr. G. K. Ghosh)—Bihar Provincial Branch; 19. Dr. B. K. Vinchure—Madhya Pradesh Prov. Branch; 20. Dr. P. R. Trivedi, 21. Dr. B. C. Mehta (In place of Dr. C. P. Bhat)—Gujarat & Saurashtra Prov. Branch; 22. Dr. Col. K. N. Waghray—Hyderabad Provincial Branch; 23. Dr. B. V. Mulay—Maharashtra & Karnatak Provincial Branch; 24. Dr. P. A. S. Raghavan, 25. Dr. U. Krishna Rau, 26. Dr. P. B. Anangaracharlar—S. Indian Provincial Branch; 27. Dr. S. N. Saxena—U. P. Provincial Branch.

(c) *Co-opted members*—28. Dr. R. A. Amesur (Bombay), 29. Dr. B. B. Yodh (Bombay), 30. Dr. D. V. Venkappa (Madras), 31. Dr. P. C. Duarah (Gauhati), 32. Dr. M. Atal (Lucknow), 33. Dr. T. S. Tirumurthi (Madras).

(d) *Invited members*—34. Dr. Digamber Singh (Hyderabad), 35. Dr. U. R. Pargaonker (Hyderabad).

1. *Condolence Resolution.*

The following resolution of condolence was passed all members standing and observing silence:—

"This meeting of the Working Committee of the Indian Medical Association places on record its deep sense of sorrow at the demise of the following members of the Association and conveys its heartfelt sympathy to the members of the bereaved families:—1. Dr. M. S. Raghavendra Rao (Tanjore), 2. Dr. R. S. Shrouti (Nagpur), 3. Dr. J. N. Srivasatava (Gorakhpur), 4. Dr. P. Venkatagiri (Madras), 5. Dr. Homi B. Bharucha (Broach), 6. Dr. K. S. Apte (Baroda), 7. Dr. I. K. Maru (Rajkot), 8. Dr. B. Chakravarty (Katihar Branch), 9. Dr. S. K. Hanumantha Rao (Bellary), 10. Lt.-Col. D. M. Sachdev (Allahabad), 11. Dr. G. R. Dinkar Rao (Madras), 12. Dr. N. Shankaran (Madras), 13. Dr. (Major) V. B. Kale (Sholapur), 14. Dr. M. K. Gopala Pillai (Trivandrum), 15. Dr. Purna Chandra Choudhury (Jaipur).

2. *Messages of inability to attend.*

Messages were received from the following members for inability to attend the meeting:—1. Capt. S. K. Chaudhuri (Banaras)—Nominated by U.P. State Br., 2. Dr. G. V. Hanumantha Rao (Guntur), 3. Dr. A. C. Ukil (Calcutta), 4. Dr. P. K. Chatterjee (Calcutta), 5. Capt. H. N. Shivapuri (Lucknow), 6. Dr. J. Mojumdar (Calcutta), 7. Dr. G. V. Joshi (Hubli), 8. Dr. Ram Rakha Dheer (Jullundur City), 9. Dr. D. G. Ojha (Jodhpur), 10. Dr. G. K. Ghosh (Patna), 11. Dr. C. O. Karunakaran (Trivandrum), 12. Dr. C. P. Bhat (Bhavnagar).

3. *Confirmation of the Proceedings of the last meeting of the Working Committee held at Delhi on 24th & 25th March, 1951.*

The Proceedings of the 39th meeting of the Working Committee held at Delhi on 24th & 25th March, 1951, were duly confirmed.

4. *Business arising out of the Proceedings of the last meeting of the Working Committee.*

(1) *Resolution of the Working Committee re. Medical Council of India Act (1933):*

Replies received so far from the Medical Council of India and Ministry of Health were noted.

(2) *Indian Pharmacopœia and Tentative list of Drugs.*

Dr. A. K. Sen informed the house that the general suggestions had been forwarded to the Indian Pharmacopœia Committee.

(3) *Letter from the Railway Board re. pay, status and prospects of medical personnel.*

The Hony. General Secretary informed the house that replies had so far been received from 5 Provincial branches. The recommendations made by the Association on the matter of pay-scales of medical personnel etc., to the Railway Board were read out by the Hony. General Secretary for the information, along with the replies which were received.

The House then discussed whether it was desirable to wait for replies from the remaining Provincial branches or should the Central Office be authorised to formulate a scheme of recommendations based on information available and present a concrete scheme to the Working Committee for its consideration. Much discussion followed in which the following members took part:—1. Dr. T. S. Tirumurthi, 2. Dr. M. Atal, 3. Dr. R. Sinha, 4. Dr. R. A. Amesur, 5. Dr. B. B. Yodh, 6. Dr. K. K. Sen Gupta, 7. Dr. M. K. Roy Chowdhury, 8. Dr. B. V. Mulay and 9. Dr. P. A. S. Raghavan.

The following resolution proposed by Dr. M. K. Roy Chowdhury was then formally passed:—

"Resolved that a Sub-Committee consisting of the undermentioned members be formed to formulate a comprehensive scheme regarding the pay, allowances and status of medical men employed under Central & Provincial Services (non-military) and submit the same before the next meeting of the Working Committee to be held in October 1951":—1. Dr. T. N. Banerjee, 2. Dr. S. C. Sen, 3. Dr. H. R. Dawar, 4. Dr. P. A. S. Raghavan, 5. Dr. A. P. Mittra—the *convener*, with powers to co-opt.

(4) *Import of Hearing Aid Instruments and other medical or surgical appliances or instruments:*

Replies from Calcutta and Madras branches had been received. Replies from Bombay was awaited.

The matter was postponed to the next meeting of the Working Committee (copies of letters received from Calcutta and Madras to be sent to Bombay).

(5) *Scales of Fees for medical examination of Life Insurance cases.*

Dr. Chamanlal M. Mehta informed the house that some concrete proposals on the subject are expected before the next meeting of the Working Committee.

(6) *Insurance Scheme:*

The matter was deferred till the next meeting of the Working Committee.

(7) Mutual Affiliation of the Indian Medical Association with the British Medical Association.

14. *Ratification of the proposed final agreement for affiliation between the British Medical Association and the Indian Medical Association.*

Item No. 14 of the Agenda being on the same subject, was also considered here.

The Honorary General Secretary presented the draft agreement which had been received from the British Medical Association regarding mutual affiliation of the Indian Medical Association with the British Medical Association. There was much discussion on the interpretation of clauses 4, 6(a) and 13 of the draft agreement.

The following resolution was proposed by Dr. B. B. Yodh and seconded by Dr. R. A. Amesur:

"Resolved that the draft agreement be ratified and the Hony. General Secretary be authorized to write a covering letter to the British Medical Association clarifying the interpretation of clauses 3(a) and 15."

Dr. M. Atal moved an amendment that 'the Agreement be ratified only after clause 4 had been referred to the Honorary Legal Adviser to find out whether the Indian Medical Association also possesses, under this clause, similar right for publishing similar notices in the British Medical Journal'.

The amendment was seconded by Dr. S. N. Saxena.

The amendment was put to vote, with the following result:

In favour of the amendment	3
Against the amendment	16

The amendment was lost.

The resolution of Dr. B. B. Yodh was then put to vote with the following result:—

In favour of the resolution	21
Against the resolution	2

Dr. Yodh's resolution was passed.

(8) *Acquiring of a plot of land for the I.M.A. Central Office, etc.* (18) *Position of Building Fund:*

These items being related were taken up together.

The Hony. General Secretary explained the present position to the House.

It was decided that the following measures be adopted in attempting to raise the building fund:—

(*a*) Appeals suitably drafted by the President should be published in the Journal every month for this purpose on a special slip attached to it on the front cover.

(*b*) A Central Committee of the following members be formed:—1. Dr. T. N. Banerjee, 2. Dr. A. C. Ukil, 3. Dr. Chamanlal M. Mehta, 4. Dr. U. Krishna Rau, 5. Dr. B. Tirumal Rau and 6. Dr. S. C. Sen.

This Central Committee should energise the Provincial Councils by periodical letters and reminders and ask them to have the subject of the building fund on the Agenda of every meeting of the respective Executive Committees and also should contact persons and visit places likely to yield liberal contributions.

(*c*) In order to encourage liberal donations, the names of donors of contributions of Rs. 1000/- and above should be announced on a marble tablet to be permanently fixed on the proposed building.

(*d*) To raise a loan or debenture or adopt such measures in consultation with the Hony. Legal Adviser which might help in raising the fund.

(*e*) Donations of Rs. 5,000/- or more, might be accepted from non-medical donors.

(9) *Disposal of Rs. 8,000/- from the Benevolent Fund as sanctioned by the Working Committee at its Sholapur Meeting:*

The Hony. General Secretary informed the House that the applications had been received, with the necessary recommendations, from the Provincial branches.

It was decided to call a meeting of the Sub-Committee as soon as possible and preferably before the end of July, 1951.

(10) *Orissa State Branch letter re. suggestions for abolishing compartmentalism of medical services into senior and junior grades of Asst. Surgeons.*

Noted.

(11) *Medical Education and Health Services Sub-Committee.*

Noted.

(12) *Resolution of Travancore-Cochin Provincial Branch protesting against training of village Vaidyas and consideration of resolution passed by the Health Ministers' Conference.*

Dr. B. V. Mulay who had been entrusted with the preparation of a draft curriculum for the training of auxiliary medical health personnel, informed the house that it would be ready before the next meeting of the Working Committee.

Dr. U. Krishna Rau submitted that his Provincial Branch wished to re-open the subject and revise the relevant resolution passed by the Working Committee previously.

(13) *Sub-Committee appointed for revising and re-drafting the rules of the I.M.A.*

The Hony. General Secretary informed the house that the draft rules had been prepared and the Ad-hoc Committee appointed by the Central Council for this purpose, would meet in the near future.

(14) *C.F.C. arrears of Jaipur and Gangapur branches and S. Indian Provincial Branch.*

Noted.

(15) *Lake Medical College, Calcutta.*

Letters from the Health Ministry (Government of India) and relevant correspondence of the Lake Medical College & Hospital Committee of the Calcutta Branch were noted by the house.

Dr. K. K. Sen Gupta gave further details regarding the deputation which waited on the Chief Minister of West Bengal.

These were noted.

(16) *Resolution passed by the Working Committee re. maintaining an adequate standard of medical education in India.*

This matter was referred to the Education & Health Services Sub-Committee.

(17) *Position regarding residencies in foreign hospitals.*

Relevant and up-to-date information was given by the Hony. General Secretary.

The house recorded its appreciation of Dr. Sen's efforts regarding the residentship programme.

(18) *Position of Building Fund.*

Already considered with Item 8.

(19) *Venue of the next All-India Medical Conference.*

The fresh invitation of the Ahmedabad Branch for holding the next Conference in February/March, 1952, at Ahmedabad was accepted by the House.

(20) *Supply of Penicillin, Streptomycin, Chloromycetin and Sulpha Drugs.*

The Hony. Joint Secretary read out letters and press statements received from the Government of India on the subject in response to a letter written from the Central Office.

Dr. B. V. Mulay suggested that Government be moved in order to remove the Assessor system for Streptomycin. Much discussion followed in which the following members took part: Dr. B. B. Yodh, Dr. H. R. Dawar, Dr. P. C. Duarah, Dr. A. K. Sen, Dr. U. Krishna Rau, Dr. S. Samaddar, Dr. A. N. Roy, Dr. B. Tirumal Rau, Dr. K. K. Sen Gupta, Dr. R. Sinha, Dr. M. K. Roy Chowdhury and Dr. T. S. Tirumurthi.

Dr. Mulay put forward the following resolution:—

"In view of the fact that doctors in the mofussil away from District centres, who are in need of Streptomycin for treatment find it difficult to obtain permits from District medical officers or Assessors in the first place and then procure Streptomycin from a dealer-chemist holding a license for stocking and in view of the fact that the permit system and control on Streptomycin have failed in their object of proper use of Streptomycin and have given rise in addition to many bad practices, including black-marketing, the Working Committee of the Indian Medical Association strongly recommends to the Government that they be pleased to remove all control on sale and use of Streptomycin."

Dr. K. K. Sen Gupta proposed the following:

'that in order to make the control of Streptomycin effective and useful, the assessorship of drug should be enlarged and extended to responsible persons only, such as Presidents and Secretaries of branches of the Indian Medical Association, Government Medical Officers holding responsible positions etc. and that it should be made available only on the requisition of a qualified practitioner registered under the modern scientific system of medicine'.

The President directed that these resolutions and the subject be referred to the Standing Educational and Scientific Committee for consideration.

(21) *Ordnance Factories and Medical Certificates:*

The relevant letters were recorded and the action taken noted.

5. *Formation of new branches—1, revival of branches—2, suspension of branches—3.*

1. The formation of the following new branches was duly approved:—

Name of Local Branch	*Under Provincial Branch with*	*No. of members*	*Date of formation*
1. Bongaon ..	Bengal	5	1-4-51
2. Karimganj ..	Assam	6	"
3. Jamui (Monghyr)	Bihar	5	"
4. Parbhani ..	Hyderabad	11	"
5. Davanagore ..	Mysore	5	"
6. Hassan ..	do	37	"
7. Mandya ..	do	20	"
8. Chttaldrug	do	10	"
9. Tumkur ..	do	56	"
10. Kalar ..	do	43	"
11. Shimaga ..	do	51	"
12. Bangalore ..	do	160	"
13. Mysore ..	do	—	"
14. Modasa ..	Gujarat & Saurashtra	9	"
15. Upleta ..	do	5	"
16. Wardha ..	Madhya Pradesh	14	"
17. Galaghat ..	Assam	6	"
18. Patan ..	Gujarat & Saurashtra	—	"
19. Navsari ..	do	14	"
20. Rampur ..	Uttar Pradesh	10	"

(2) It was noted that following branches had been revived:—

1. Asansol ..	Bengal	1-10-50
2. Gocharan ..	do	1-4-51
3. North Howrah ..	do	"
4. Dehra Dun ..	U.P.	"
5. Jhansi ..	do	"
6. Deoria ..	do	"
7. Firozabad ..	U.P.	"
8. Nellore ..	Andhra	"
9. Anantapur ..	do	"
10. Cuddapah ..	do	"
11. Malda ..	Bengal	"
12. Gonda ..	U.P.	"
13. Chandausi ..	do	"
14. Muzaffarnagar ..	do	"

(3) The following branches were recorded as suspended as per advice received from the respective provincial offices:—

1. Koraput ..	Orissa	1-4-51
2. Kandrapara ..	do	"
3. Salipur ..	do	"
4. Ballia ..	U.P.	"
5. Chandmari ..	Bengal	"
6. Bhind ..	Madhya Bharat	"

6. (*a*) *Consideration of C.F.C. arrears if any.*

The following arrears of C.F.C. were written off as per recommendations and explanations submitted by the Provincial branches concerned:—

Name of Prov. Branch	*Years* 1948-49	1949-50	1st half of 1950-51	*Total*
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1. Rajputana ..	68 0	256 8	40 0	364 8
2. Orissa ..	40 0	260 0	135 0	435 0
3. Madhya Bharat ..	32 0	90 0	300 0	422 0
4. Assam ..	26 0	112 8	—	138 8
5. Hyderabad-Dn. ..	120 0	—	—	120 0
6. South India ..	338 0	260 0	—	598 0

6. (*b*) *Position of Provincial Quota of C.F.C. lying at the Central Office at the credit of Provincial branches.*

The Honorary General Secretary gave information re. the up-to-date position of C.F.C. arrears, total dues and amounts realised upto June 30, 1951.

The Hony. General Secretary wanted direction of the Working Committee re. certain amounts lying in credit on behalf of certain Provincial branches, since before the Central Office came to Delhi from Calcutta. These amounts have not been claimed or adjusted by the Provincial branches concerned.

DETAILS

Name of Provincial Branch	*Amount lying unclaimed*
1. Andhra Provincial Branch ..	Rs. 404 8 0
2. Bihar Provincial Branch ..	" 309 4 0
3. South Indian Provincial Branch	" 117 4 0
4. Sind (Pakistan)	" 20 0 0
5. Hyderabad-Deccan	" 36 0 0

It was decided that these amounts be appropriated to the Central Fund.

7. *Adoption of Audited Accounts.*

(Central Office: From 1st January to 31st March, 1951)
(Journal Dept.: do do)

The Audited Accounts for the quarter ending 31st March, 1951 of both (1) Central Office and (2) the Journal Department were approved.

8. *Consideration of letter dated 25th March, 1951 from the Hony. Joint Secretary, Poona Branch, I.M.A. regarding qualification of Dr. R. A. Sabne,* R.M.P. *and enrolment as a member of the I.M.A. and interpretation of Rule No. 4 of the Indian Medical Association which is vague:*

The Hony. Joint Secretary read out the relevant letters re. Dr. R. A. Sabne of Poona.

Discussion followed in which Drs. Chamanlal M. Mehta, T. S. Tirumurthi, B. R. Nayen and B. B. Yodh took part.

It was decided that "R.M.P" is not a qualification and thus it could not be recognised as such for membership of the Association.

9. *Consideration of Circular Letter No. 36.16/51 dated 16-3-51 of the World Medical Association re. proposed amendments to its Constitution and Bye-laws:*

These were noted and the Working Committee was in favour of the proposed amendments and changes in Bye-laws being effected.

10. *Consideration of letter dated 14th May, 1951 of the Hony. Secretary, Mysore Provincial Branch to allow him to make use of the monogram of the I.M.A. for the Journal of the Mysore Medical Association.*

The permission asked for by the Mysore Provincial Branch was given re. the use of the Association crest on the Journal of the Mysore Medical Association which was being published since long before the Mysore Provincial Branch was formed.

11. *Consideration of system of Honorary Medical Officers.*

This matter was referred to the Medical Education and Health Services Sub-Committee for consideration.

12. *To note the decision of Deputy Custodian Evacuees' Property (authorised) on our application for reduction of rent, reducing the rent of the office building by 33%, i.e., from Rs. 162 p.m. to Rs. 108/- per mensem with effect from 1st May, 1951.*

Recorded.

13. *Decision to be made by the Working Committee on the T. A. Bill to be paid to Col. T. S. Shastry (Madras) for attending the meeting of the Working Committee held at Delhi on 24th & 25th March, 1951.*

The relevant correspondence was read out by the Honorary General Secretary.

Drs. S. C. Sen, Chamanlal M. Mehta, B. B. Yodh, B. R. Nayen took part in the discussion and Dr. Vishwanadha Rao —Hony. Secretary of the Andhra Provincial Branch explained the position.

The President then declared that he will decide the matter and no further discussion was necessary.

14. *Ratification of the proposed final agreement for affiliation between the British Medical Association and the Indian Medical Association.*

This Item had been considered with Item No. 4(7) of the Agenda as recorded above.

15. *Consideration of Resolution dated 28th May, 1951 of the Sholapur Branch protesting against licenses for possession and transport of DD2 and DD6 by the medical practitioners for quantities below one pound:*

Dr. B. V. Mulay explained why he had brought this matter up for consideration.

The Working Committee was of the opinion that this was a local matter and could be taken up jointly by the Bombay Provincial Branch and the Maharashtra and Karnatak Provincial Branch.

Dr. Mulay accepted this.

16. *Report of Dr. S. C. Sen on the last meeting of the Council of the World Medical Association held at Geneva.*

17. *Reports by Dr. S. C. Sen on other activities during his recent tour abroad:*

Dr. S. C. Sen gave a resume of his experiences and about the working of the Council meeting of the World Medical Association which had been held at Geneva at the end of April and early May, 1951 which he had attended.

18. *Consideration of invitations to be issued to:*

(1) World Medical Association for holding the Council meeting in India in March or April of either 1952 or 1953.

(2) Commonwealth Medical Conference to be held in India in March, 1952.

1. It was decided to invite the World Medical Association to hold its Council Meeting in March or April in 1952 and 1953.

2. It was decided to invite the Commonwealth Medical Conference to hold its session at Ahmedabad in February/March, 1952 at the time of the next All-India Medical Conference.

19. *Position regarding Journal and Lay Journal:*

Dr. A. D. Mukharji—the Hony. Editor of the Journal explained the difficult position about starting the new lay journal owing to scarcity of paper.

Dr. S. C. Sen informed the house what efforts he had been making re. the proposed lay journal re. reading matter and advertisements for it.

Dr. Mukharji suggested that the lay health journal "Your Health" be published from January, 1952. The Committee approved of the suggestion.

The Working Committee warmly complimented the Editor and the Journal Department for the marked improvement in the quality of the Journal and particularly for the punctual publication of it every month now for the past several months.

20. *Any other business with the permission of the President:*

1. Consideration of resolution passed by the General body of the Coimbatore District Medical Association (Branch of the I.M.A.) regarding the statement made by Dr. B. R. Ambedkar, Minister for Law, Government of India in the Parliament on 12th May, 1951 re. medical certificates:

The resolution was recorded.

2. Consideration of Questionnaire issued by the Ghee Adulteration Committee, Ministry of Food and Agriculture (Food), Government of India, New Delhi.

The questionnaire was considered and suitable replies were drafted. These were to be sent to the Ghee Adulteration Committee.

3. Consideration of letter dated 27th June, 1951, received from the Secretary, Delhi Medical Association, requesting that permission to start new branches of the Indian Medical Association in Delhi Province should not be given for reasons mentioned therein.

The letter from the Delhi Medical Association was read out by the Hony. Joint Secretary.

Discussion followed in which the following took part:—

Drs. B. B. Yodh, M. Atal, A. K. Sen, B. R. Nayen, T. S. Tirumurthi, R. A. Amesur, Chamanlal M. Mehta, K. K. Sen Gupta, S. C. Sen.

The following resolution was passed:—

"Resolved that the *status quo* be maintained and when such a situation arises, the interests of the present members of the Delhi Medical Association shall be safeguarded."

4. (*a*) Consideration of application from the staff of Central Office requesting for the increase of dearness allowance in their salaries.

(*b*) Consideration of application of Shri P. D. Gauba, Head Clerk, Central Office, for free rent of upper portion of C/O building occupied by him.

(*a*) The application from the Central Office staff for the increase of dearness allowance was favourably considered and it was decided that an increment in the dearness allowance of Rs. 5/- (Rupees five only) per month be given to all the members of the staff of the Central Office as well as of the Journal Department, with effect from 1st July, 1951.

(*b*) It was decided that with effect from 1st July, 1951, Mr. P. D. Gauba be allowed to use the upper portion of the Central Office building free, as a reward for special services rendered by him to the Association.

5. Consideration of letter dated 27th June, 1951 from Dr. Chamanlal M. Mehta, re. the opinion of the Registrar of Companies, Bombay, about the inclusion of some words in the Memorandum of the Indian Medical Association Clause 3-Objects:

Noted.

6. Consideration of letter dated 22nd June, 1951 from Dr. Shanti Swaroop, a member of Ludhiana Branch, regarding

his desire to join some other branch of the I.M.A. after leaving Ludhiana Branch, for reasons explained by him therein.

Noted. This matter was meant for the Punjab State Branch.

7. Consideration of replies to Resolutions passed by the 26th and 27th All-India Medical Conferences held at Allahabad and Sholapur respectively, received from the Central and Provincial Governments.

Noted.

8. Consideration of letter dated 15th June, 1951 from Faizabad Branch regarding Circular No. 31/50-51 dated 9th April, 1951 issued by the Central Office.

It was decided to re-circulate the above Circular to all the branches of the Indian Medical Association, requesting the members of the medical profession not to give any rebate on medical fees to any Bank and that ordinary charges should be made.

The Circular was to be published in the Journal of the I.M.A.

9. To note the venue of the next Working Committee meeting to be held in October:

The house noted that the next meeting of the Working Committee would be held at Gauhati on 14th and 15th October, 1951, and not at Shillong as already circulated to the members.

10. Consideration of letter dated 30-5-51 from Sitarampur Branch, enclosing a copy of resolution passed by it, regarding the notification of Coal Mines Welfare Board (Minister of Labour) Government of India.

The matter was discussed and it was decided that further detailed information be supplied on the subject by the Bengal Provincial Branch, prior to any action to be taken by the Central Office.

11. Consideration of letter dated 26-6-51 of Dr. Ram Rakha Dheer re. non-recognition of L.M.S. (Non.F.Sc.) diploma of the Punjab State Medical Faculty.

The Hony. Joint Secretary informed the house that the list of members of Medical Council of India had been obtained and that it would be supplied to all the members of the Working Committee so that individual efforts might be made to convert the members of the Medical Council so that the decision then might be reversed.

12. Re. Interest on G.P. Notes.

The matter was deferred till the next Working Committee meeting and the Hony. Treasurer was requested to consult the bank authorities and get the position clarified.

13. Consideration of letter dated 12th May, 1951, from a widow of a deceased member—Dr. M. S. Raghavendra Rao of Tanjore—requesting for the refund of C.F.C.

The House considered a letter from a widow of a deceased member, Dr. M. S. Raghavendra Rao of Tanjore Branch, requesting for the refund of C.F.C. paid by the member for the year 1950-51.

It was decided, as the Rules of the Indian Medical Association do not permit the refund of C.F.C., the widow be, as a special case, given a sum of Rs. 10/- from the Distress Relief Fund, in lieu of balance C.F.C. which amounted to Rs. 1/8/-.

21. The following resolution was proposed from the chair and passed:—

The Working Committee of the Indian Medical Association places on record its deep appreciation and thanks for the hospitality and courtesy accorded to its members on the occasion of the meeting held on 7th and 8th July, 1951, by:

(1) President, Hony. Secretary and the members of the Hyderabad Branch.

(2) The Hyderabad Provincial Branch.

With a vote of thanks, the meeting came to a close.

T. N. BANERJEE
President

S. C. SEN,
Hony. General Secretary

AMBALA CITY BRANCH—A general meeting of the branch was held on the 13th February 1951 at the residence of the president, with Dr. I. Gibbins in the chair.

Dr. B. L. Malhotra spoke on Leprosy. Then some films on the history of Philadelphia hospital and operations of mastectomy and thoracoplasty were exhibited through the courtesy of the American Embassy.

ARRAH BRANCH—At a meeting of the branch held on the 25th February 1951 with Dr. V. Shankar in the chair, 19 members were present.

The members resolved that each member of the branch should donate a minimum sum of Rs. 5/- only to the I.M.A. building fund opened at Delhi. The members also resolved that their professional fees for home visits in the town should be raised from Rs. 2/- and Rs. 4/- to Rs. 4/- and Rs. 6/- respectively, in view of present economic conditions.

BENGAL PROVINCIAL BRANCH—A meeting of the Working Committee of the branch was held on the 19th January 1951 with Dr. A. D. Mukharji on the chair, 19 members were present.

At the outset the Committee condoled the sad death of Dr. J. C. Ghosh of Raniganj. The Secretary informed the house that a new local branch was being formed at Balurghat in West Dinajpur and steps were being taken to revive Asansol branch.

The Committee fixed up 17th February 1951 as the date for holding the next annual meeting of the Bengal Provincial Council. The Committee also appointed a sub-committee consisting of 10 members to consider the draft resolutions for the next provincial medical conference to be held on 18th February 1951.

BEHRAMPUR (GANJAM, ORISSA) BRANCH—The Annual general meeting of the branch was held on the 11th February 1951 at the residence of the president with Dr. P. Satyanarayana in the chair. Dr. Satyanarayana was re-elected as the President and Dr. M. V. Ramanayya as the Secretary of the branch.

BIHAR PROVINCIAL BRANCH—A meeting of the Provincial Council of the branch was held on the 26th February 1951 with Dr. R. Saran in the chair. 31 members were present.

At first members condoled the sad death of Dr. M. G. Naidu.

Dr. S. Samaddar informed the house that he intended to contest the seat of the Patna University allotted to the Bihar Provincial Branch of the I.M.A. The details for the election were discussed and finalised. The resignation of Dr. Samaddar as an office-bearer was not accepted. Some of the rules of the Provincial Branch were changed by the Council.

CALCUTTA BRANCH—At a meeting of the Executive Committee of the branch held on the 12th January 1951, Dr. J. C. Banerjea presided and 31 members were present.

After the routine business was transacted, the Secretary informed the house that as a representative of this association he attended a conference on 6-1-51 at the office of the Corporation of Calcutta to devise ways and means to combat the small pox epidemic. The members opined in this connection that a long term scheme should also be drawn up to control the disease, on a permanent basis.

* * * * *

At another meeting of the Executive Committee of the branch held on the 6th February 1951, Dr. J. C. Banerjea presided and 25 members were present.

The Committee discussed the question of small pox and other epidemics of the city. The Committee also discussed the problems in relation to improvement of the standard of hospital service in the city and suburbs.

* * * * *

At another meeting of the Executive Committee of the branch held on the 13th March 1951 with Dr. J. C. Banerjea on the chair, 23 members were present.

The Committee considered the various aspects of mass radiography in tackling the problem of tuberculosis in Calcutta. Dr. A. N. Roy was elected as the representative of this branch to the visiting committee of the Lake Medical College and Hospital. The Committee recommended that the Calcutta Corporation authorities should make necessary provisions for inclusion of a representative of this branch of the I.M.A. to the Board of Health of the Corporation.

The Committee decided to hold its ordinary monthly meetings on the second Tuesday every month. The resignation of Dr. P. K. Guha as a member of the Committee of this branch was also accepted with regret.

COIMBATORE BRANCH—At a meeting of the branch committee held on the 16th February 1951, Dr. M. G. Nair presided and 12 members were present.

After the routine business was transacted, the Secretary placed a circular from the Chemists and Druggists Association regarding retention of the prescriptions containing spirituous preparations from the registered medical practitioners. The matter was referred to the Provincial Council for necessary action.

The Committee also decided to have a joint meeting with Malabar branch in March 1951.

* * * *

At another meeting of the branch held on the 28th February, 1951 at the branch association premises with Mr. M. G. Nair in the chair, about 75 members are reported to have attended.

Flt. Lt. Ghosh of I.A.F. spoke on 'The Physiology of High Altitude Flying' and Dr. P. K. Kalyanaraman demonstrated a case of "Patent Ductus Arteriosus".

* * * *

At another meeting of the branch held on the 22nd March, 1951 Dr. M. G. Nair presided and about 60 members attended. Dr. K. V. Rao spoke on the "Various Types of Fevers in Tuberculosis Infection".

EAST GODAVARI BRANCH—A meeting of the branch was held on the 17th February, 1951 at Pedadapurum with Dr. C. Sitaramaraju in the chair.

Considering the situation in East Godavari district, the branch recommended to the Government to drop the idea of rice rationing in this district. After the routine business, a scientific session with a symposium on hydrocele was held in which Drs. B. Venkataraju, B. Sankararao, Ammannapantulu and T. Kanakaraju took part. Dr. B. Veerraju then spoke on Chloromycetin in typhoid fever.

GORAKHPUR BRANCH—The annual general meeting of the branch was held on the 3rd February, 1951. At the outset, condolence resolutions were passed to condole the sad deaths of (1) Sri Aurobinda Ghosh, (2) Sardar Patel, (3) Sri Thakar Bappa, (4) Dr. K. S. Ray, (5) Dr. A. Hasan and (6) Dr. A. P. Misir. Dr. P. D. Srivastava and Dr. M. P. Chaturvedi were then elected as president and secretary respectively of the branch for the year 1950-51.

MADURA BRANCH—The 23rd annual general meeting of the branch was held on the 17th February, 1951 at the Victoria Edward Hall, Madurai. About 80 members were present.

At the outset, the members condoled the sad death of Major M. G. Naidu.

Dr. P. Vadamalayan, the outgoing president, spoke on the activities of the branch during the previous year and introduced Dr. M. N. Rajan the incoming president. Dr. Rajan took the chair and delivered his presidential address.

Dr. P. Ratnasamy spoke on 'changing concepts in modern medicine'. Dr. B. Jayaram then spoke on 'the treatment of tuberculosis'.

* * * *

At another meeting of the branch held on the 24th March, 1951, Dr. M. N. Rajan presided.

The branch condoled the sad death of Mr. T. N. C. Nagalingam Pillai, Dr. J. C. Savarirayan was present on special invitation. Dr. P. Vadamalayan spoke on 'Urinary lithiasis'.

PORBANDER BRANCH—At a meeting of the branch held on the 25th February, 1951, with Dr. H. H. Chavda in the chair, 18 members were present.

After the routine business, Drs. K. W. Waghela, N. L. Jyoti and N. S. Bhatt spoke on 'Leucoderma', 'Haematuria' and 'Some Developmental Anomalies' respectively. After some interesting cases were demonstrated by other members a film on peptic ulcer was shown.

* * * *

The annual celebrations of the branch were held on the 21st and 22nd March, 1951. Col. Rai, Director of Health Services, Government of Saurashtra, inaugurated the celebrations and Surgeon Commander Dr. V. L. Parmar was the chief guest and presided over the scientific sessions. About 50 doctors participated.

Dr. H. H. Chavda welcomed the guests and the members. A public health exhibition was organised on this occasion by the branch with the co-operation of the public health department of the Government of Saurashtra.

TANJORE BRANCH—At a meeting of the branch held on the 17th February, 1951, Dr. T. M. Pillai presided and 30 members were present. After the routine business, Dr. Subbulakshmi spoke on 'Ectopic gestation'.

THIRD ASSAM PROVINCIAL MEDICAL CONFERENCE, GAUHATI

It has been finally decided to hold the third Assam Provincial Medical Conference under the auspices of the Gauhati Branch of the Indian Medical Association at Gauhati on the 15th, 16th and 17th October, 1951. It is also decided to hold Scientific and Health Exhibitions along with it. The scientific side will comprise of 4 sections, *viz.*, Surgical, Medical, Gynæcological and Hygiene and Public Health. There will also be a demonstration of Scientific Films. It will be a very important session as many vital problems relating to the interest of the country and to the medical profession in particular will be discussed and the future course of action formulated. Moreover, the Working Committee of the Indian Medical Association will meet for the first time at Gauhati on the 14th and 15th October along with the Conference. As such many distinguished leaders of the Association and the profession will be visiting and attending the Conference.

The General Secretary, Reception Committee (Dr. G. Das), appeals to the members of the Assam Branch, I.M.A. to extend their co-operation by sending financial and scientific contributions and participating in the Conference to make it a success.

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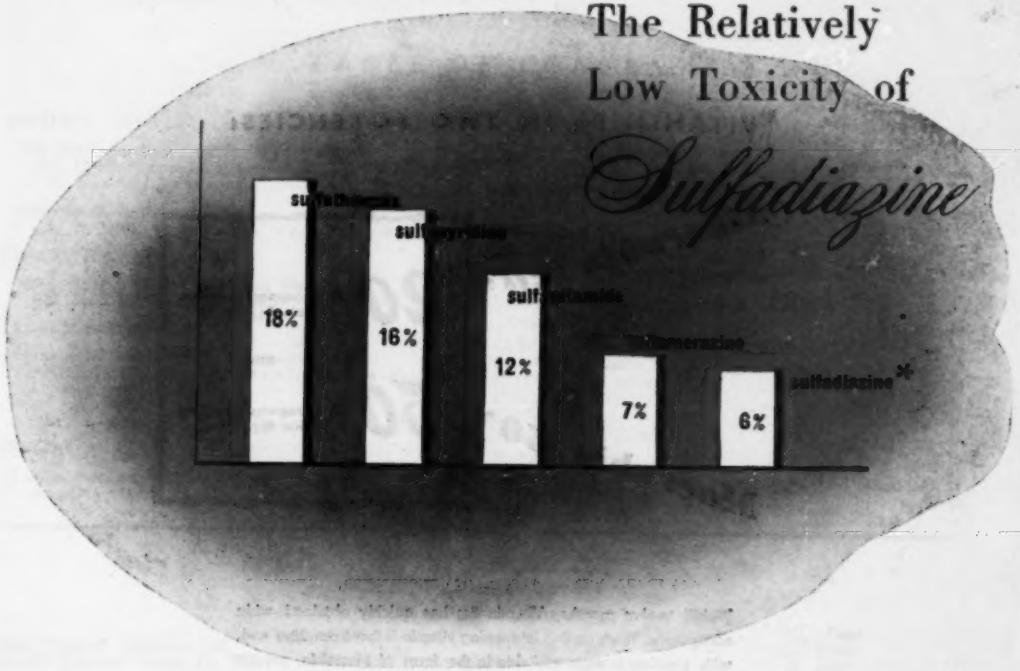

The Council on Pharmacy and Chemistry of the American Medical Association commenting on the omission of sulfathiazole from New and Nonofficial, Remedies, remarked on the relative toxicity of sulfanilamide, sulfamerazine, and sulfadiazine. The lowest percentage of toxicity was attributed to sulfadiazine.

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*Council on Pharmacy & Chemistry, Report of the Council, J. A. M. A. 136 : 691 (Mar. 6) 1948.

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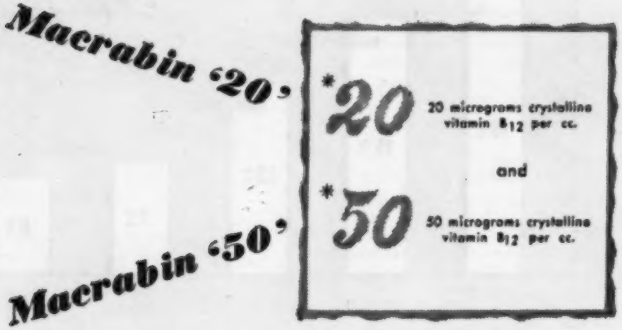

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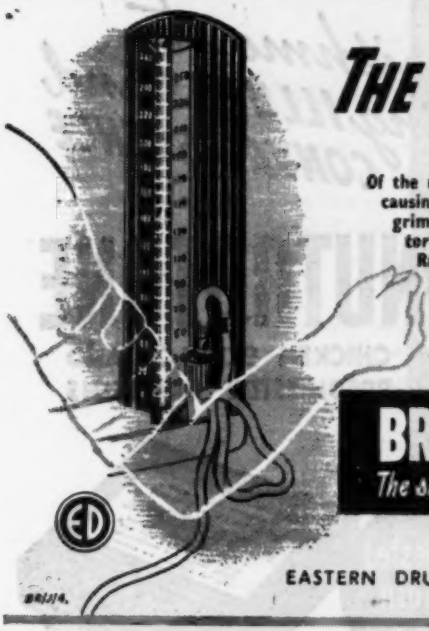

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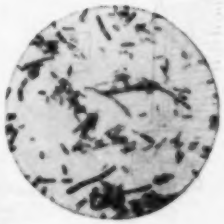

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1. Linnell, W. D. and Fletcher, A. P.: Brit. M. J. 2:1190 (Nov. 25) 1950. 2. Finland, M., et al.: Ann. N. Y. Acad. Sc. 53:290 (Sept. 15) 1950. 3. Dowling, H. R. et al.: Ann. N. Y. Acad. Sc. 53:633 (Sept. 15) 1950. 4. Most, H.: Report to the American Public Health Association, abstracted in Pub. Health Rep. 65:1604 (Dec. 15) 1950. 5. Ruiz Sanchez, F. et al.: Medicina, Mexico 30:365 (Sept. 10) 1950.

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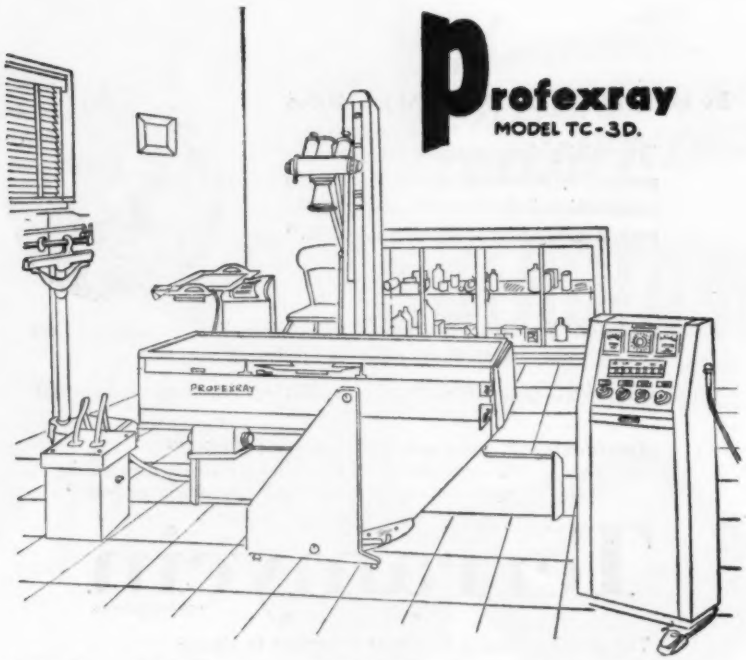

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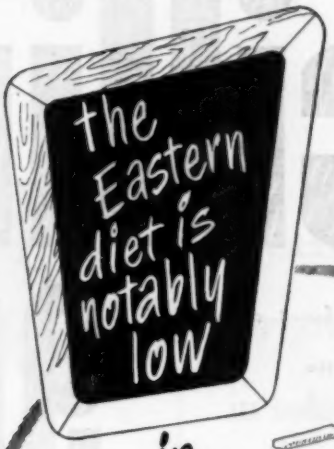

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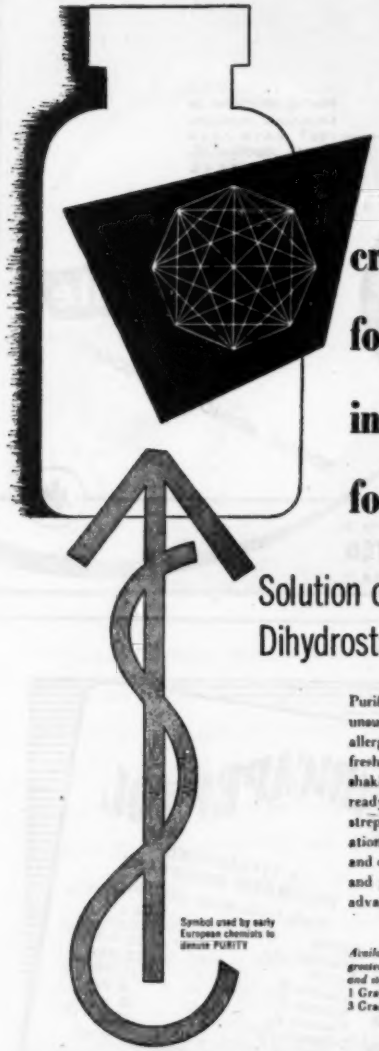

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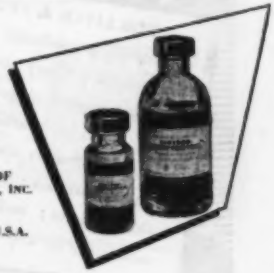

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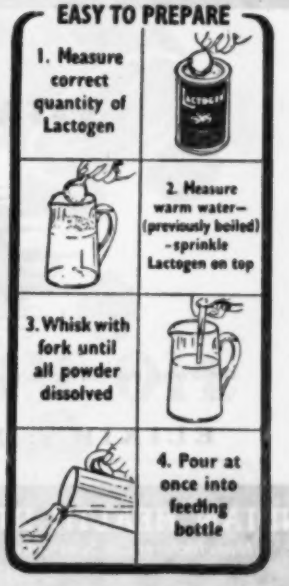
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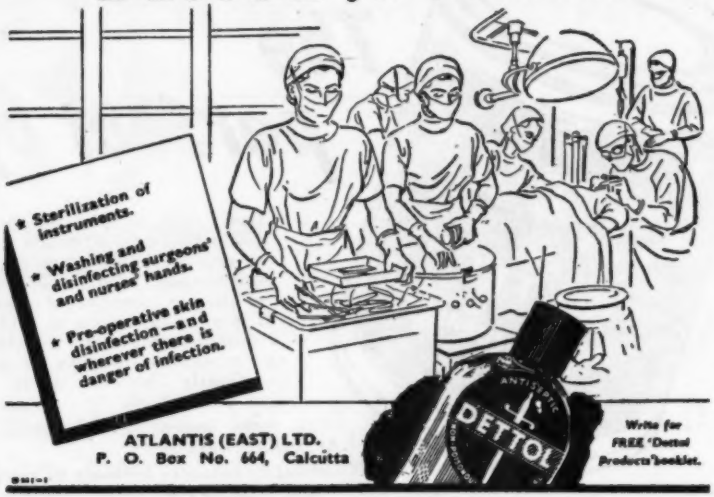
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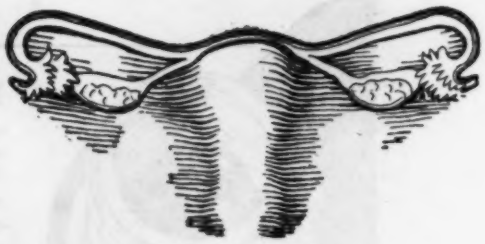

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Journal of the
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Vol. XXI, No. 1 CALCUTTA October, 1951

THE SPLEEN IN KALA-AZAR

P. C. SEN GUPTA, M.B.

Officer-in-charge, Kala-azar Research Department,

AND

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Sir U. N. Brahmachari Research Fellow,

(From the School of Tropical Medicine, Calcutta)

In kala-azar, a disease characterised by parasitisation of the cells of the reticulo-endothelial system, spleen, the largest single store of reticulo-endothelial tissue, shows marked changes with the progress of the disease. Clinically splenic enlargement is almost invariable and it is progressive. In the early and the moderately advances cases, it is soft to the feel, but as the disease becomes chronic the spleen progressively becomes firmer and in the late stage, it becomes quite hard on palpation. The pathological changes in the spleen in kala-azar have been studied by many workers during the last fifty years, the earliest comprehensive description being that of Christophers (1904). Important contributions to the pathology of kala-azar have been made by workers in India and abroad, particularly by De (1932) and by De and Tribedi (1939). The last named paper also described the pathogenesis of splenomegaly due to kala-azar and other common splenomegalic conditions met with in India, *viz.*, malaria and 'Bengal splenomegaly'. It is generally held that in kala-azar, the essential change consists of proliferation and parasitisation of the clasmatocytes in the pulp of the spleen, and there is a marked degree of vascular congestion, thickening of the capsule and the trabeculæ but there is little evidence of fibrosis; the malpighian follicles are encroached on by the heavily parasitised macrophages and ultimately disappear completely. The object of the present paper is to consider in detail the histological changes in the different stages of kala-azar and to discuss the mechanism of causation and the effect of these changes in the light of recent concept of physiology and pathology of the spleen.

The pathological changes in man in the very early stages of kala-azar are not definitely known, because it is extremely unusual for a case of kala-azar to die at this stage of the disease. But these changes have been studied in the hamster and full description of the pathological changes in the spleen in all stages of the disease is available (Meleney, 1925). The earliest change noted is the presence of a few parasitised clasmatocytes (9th day of infection). By the 11th day a larger number of single clasmatocytes are seen in the pulp and by 15 days islands of mostly parasitised clasmatocytes appear. In the 90 day animal much of the pulp is replaced by clasmatocyte tissue and some of the lymph follicles are invaded by it. At a later stage (125 days) the picture is similar but more advanced. Clasmatocytes containing red cells as well as parasites are found and the blood capillaries and sinuses are somewhat compressed by the surrounding cells; replacement of the lymphoid follicles is more marked. At a very advanced stage the splenic sinusoids are widely dilated and contain parasitised clasmatocytes and the other changes as described above are more pronounced.

We present the description of the histological changes in a section of spleen from a case of kala-azar, the clinical history of which is not known, but from a marked similarity to the changes described in the hamster 90 days after infection, we presume that this section is from a fairly early case of kala-azar of duration of possibly about 3 to 4 months. The changes noted in this specimen may be regarded as the features in an early stage of kala-azar. This specimen shows the following histopathological changes:

The capsule and the trabeculæ are normal. The lymph follicles are opened out and are invaded by parasite-laden clasmatocytes (Fig. 1). The pulp is full of clasmatocytes almost all of which are heavily parasitised and a few of the macrophages contain ingested red cells as well. A few lymphocytes and plasma cells are also seen in the pulp. The sinuses are narrowed down by proliferated clasmatocytes.

In chronic kala-azar, the capsule and the trabeculæ are thickened and there is a distinct increase of reticulum. The lymphoid follicles are fairly numerous and some of them show increase of reticulum fibres coursing through and often arranged in concentric circles through the lymph follicles. The arteries show little change but the sinuses are congested with blood and are widely dilated in areas (Fig. 2). The pulp appears congested with blood and there is a marked proliferation of the clasmatocytes many of which are parasitised. Large-sized macrophages containing ingested blood cells, *viz.*, leucocytes, red cells, and also leishmania are present in a fair number in the pulp and the dilated sinuses. Lymphocytes and plasma cells are also seen in the pulp (Figs. 3 and 4).

In very advanced kala-azar the capsule, the trabeculæ and the reticulum are markedly thickened and the trabeculæ consist of fibrous tissue only. The sinuses are widely dilated and contain blood cells and large macrophage cells and under the low power, the appearance of the specimen bears a superficial resemblance to an angioma (Fig. 5). The pulp in between the widely dilated sinuses is also congested with blood and shows marked proliferation of the clasmatocytes. Lymphocytes, plasma cells and occasional granulocytes are also seen. There are numerous very large-sized macrophages in the dilated sinuses and a few of these in the pulp as well. These large phagocytic reticulo-endothelial cells contain blood cells, *viz.*, erythrocytes, polymorphonuclear leucocytes, lymphocytes and some of them contain leishmania as well (Fig. 6).The lymphoid follicles are inconspicuous.

Discussion

From the above description, it will be apparent that the outstanding feature of early kala-azar is the intense infiltration with heavily parasitised clasmatocytes; vascular changes are inconspicuous and the lymphoid folicles in the process of being invaded by parasitised macrophages. In the chronic stage, there is also a marked proliferation of the clasmatocytes but the proportion of parasitised cells is distinctly less. Fair number of lymphoid follicles are present. Large phagocytic cells containing ingested blood cells and at times leishmania as well are present in the pulp and the dilated sinuses. Vascular changes are apparent, *viz.*, congestion and opening out of the sinuses, and the splenic frame work consists of a predominance of reticular and fibrous elements. In the advanced stage of kala-azar vascular changes dominate the picture and there is marked thickening of the reticulum and increase of fibrous tissue in the supporting frame work of the spleen. The widely dilated sinuses contain blood cells, large macrophages containing ingested blood cells and the congested and proliferated pulp tissue in between the widely dilated sinuses also contain smaller macrophages, lymphocytes and plasma cells. The lymphoid follicles are almost all replaced by the reticulo-endothelial and vascular elements.

The changes in early kala-azar are caused by proliferation and parasitisation of the clasmatocytes. Proliferation of the clasmatocytes that are cells of the reticulo-endothelial system is caused by the specific response of the human system to leishmanial infection aiming to destroy the parasite by phagocytosis. But the leishmanial parasite of man has in the course of evolution developed the capacity of multiplying in the cells of the same system and as multiplication of the leishmania in the cytoplasm of the clasmatocytes, rupture of the host cells and phagocytosis of the liberated parasites continue there is an increased production of the clasmatocytes. The lymphoid follicles are affected by invasion by the proliferated clasmatocytes.

As the disease passes on to the chronic stage there is a continuation of the specific body response, *viz.*, proliferation of the reticulo-endothelial cells, and the proliferation is in excess of parasitisation. With the considerable enlargement of the spleen there is the development of a supporting frame-work of reticulum and collagen fibres and the enlarged organ has relatively less amount of contractile elements, *viz.*, plain muscle fibres and it is very probably unable to undergo normal degree of rhythmic contractions. There is an increased blood supply to the proliferated tissue and prolonged stasis of blood in the sinuses of the spleen due to lack of normal degree of rhythmic contractions. This leads to the opening out of the sinuses and congestion with blood of the sinuses and the pulp. Lymphoid follicles are present in fair number but there is extension of proliferated reticulum into these. The changes in the very advanced stages of kala-azar are due to the marked accentuation of vascular stasis, increase of fibrous tissue and continuation of reticulo-endothelial cell proliferation. The presence of large number of macrophages containing ingested blood cells is closely related to the vascular stasis (*vide infra*).

Before we proceed to discuss the effect of the pathological changes in the various stages of kala-azar on the spleen and its functions, it is necessary to briefly consider what the functions of the different components of the spleen are.

There are three sets of functional elements in the spleen, *viz.*, the vascular system, the reticulo-endothelial tissue and the lymphoid tissue, supported by a fibromuscular capsule and trabeculæ and a fine reticulum. The fibromuscular capsule enables the spleen to undergo rhythmic contractions and regulate the storage of blood in the organ. Under conditions of stress contraction of the spleen can make blood stored in it available to general circulation. The functions of the three groups of tissues in the spleen have been described and illustrated diagrammatically by Doan (1950).

The function of the vascular system consisting of arteries, capillaries, semipermeable sinuses and veins—a vascular bed provided with sphincters to regulate the blood flow—is essentially storage of blood cells. Due to the sphincter action there is stasis for variable periods in the sinuses (? in the pulp also) and this leads to separation of plasma from the blood cells and modification of the red cells for their subsequent phagocytosis in the spleen or elsewhere. Reticulo-endothelial tissue consists of vascular endothelium and the cells derived from the reticulum cells, macrophages, monocytes and the splenic reticulum. The most important function of these cells is phagocytosis of the modified blood cells, RBC, WBC and the platelets, debris of tissue, bacteria, etc. Globulin formation, formation of antibodies, lysolecithin are some of the other functions ascribed to the cells of this system. The functions of the lymphoid tissue consisting of lymph follicles containing lymphoblasts and lymphocytes, are not definitely known; but these elements are believed to be concerned with protein metabolism and immunity reactions.

There are certain clinical conditions associated with splenic enlargement showing evidence suggestive

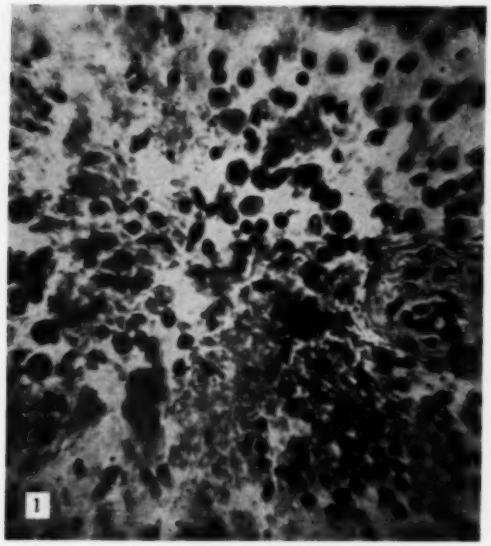

FIG. 1—Spleen in early kala-azar (Iron-hæmatoxylin & Eosin). Parasitised clasmatocytes encroaching on a lymphoid follicle.

FIG. 2—Spleen in chronic kala-azar (IH & E). (Low power) Congestion of the pulp and proliferation of reticulum fibres—some of which extend into the lymphoid follicle.

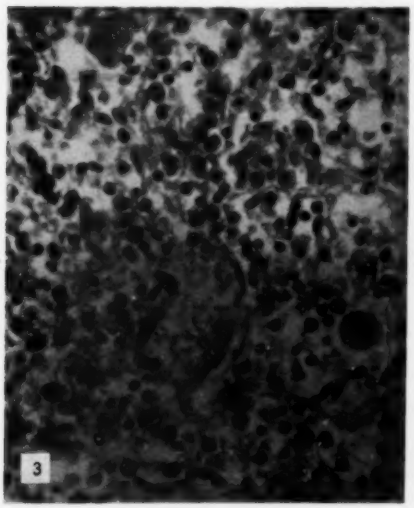

FIG. 3—Spleen in chronic kala-azar (IH & E). (High power). Splenic pulp showing dilated sinuses. Large macrophage cells containing ingested blood cells, lymphocytes, plasma cells and clasmatocytes are also seen.

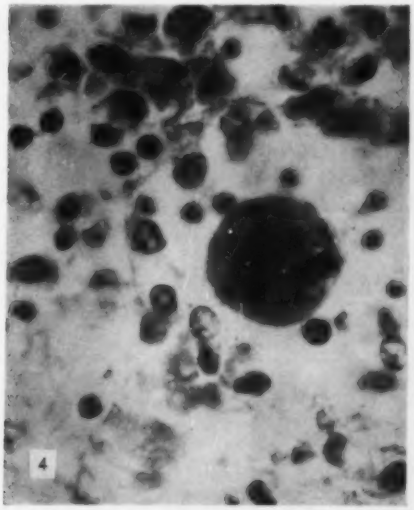

FIG. 4—Spleen in chronic kala-azar (IH & E) (Oil immersion). A large macrophage cell with ingested blood cells is seen.

FIG. 5—Spleen in advanced kala-azar (IH & E). (Low power). The sinuses are widely dilated showing large macrophages in some. The normal splenic pattern has disappeared entirely

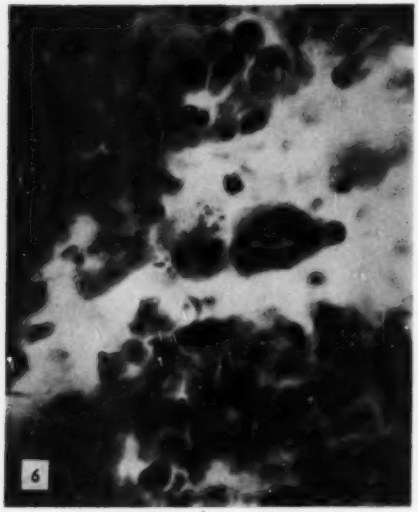

FIG. 6—(Same specimen as Fig. 5) Advanced kala-azar (IH & van Gieson) (Oil immersion). Parasitised macrophages in a dilated splenic sinus. That on the right hand side contains L. D. bodies and blood cells. Another parasitised cell is seen in the pulp.

FIG. 1

FIG. 2

FIG. 3

of overactivity of the organ, *viz.*, excessive destruction of platelets, granulocytes and red cells to a variable degree, and such conditions are relieved by splenectomy. The term hypersplenism has been applied to indicate the underlying pathological mechanism in such cases. Hypersplenism may be an inherited *primary* abnormality so that the spleen destroys excessive number of platelets (essential thrombocytopenic purpura), red cells (congenital hæmolytic icterus) or granulocytes (primary splenic neutropenia) or all three types of cells indiscriminatingly (splenic panhæmatopenia); or it may be acquired *secondarily* through pathological changes in the spleen itself. Secondary hypersplenism has been reported by Doan (*loc. cit.*) in the following conditions:

(*a*) Congestive splenomegaly, *viz.*, Banti's syndrome, Felty's syndrome, acquired hæmolytic icterus.

(*b*) Infiltrative splenomegaly, *viz.*, Gaucher's disease, xanthomatosis.

(*c*) Hæmoblastic splenomegaly, *viz.*, leukæmias.

(*d*) Inflammatory splenomegalies, *viz.*, tuberculosis, syphilis, moniliasis, Boeck's sarcoid, Hodgkin's disease.

(*e*) Neoplastic splenomegaly, *viz.*, multiple myeloma, hæmangioma, etc.

(*f*) Myelofibrosis with fibrous splenomegaly without myeloid metaplasia.

The underlying pathological mechanism in hypersplenism is as follows:

Splenomegaly is associated with an increase of the vascular bed and thus to an increase of reservoir capacity. Increase of reservoir function with possible lack of normal rhythmic contractions leads to stasis of blood in the sinuses (and the pulp), deplasmatisation, alteration of the blood cells and their prolonged contact with the reticulo-endothelial phagocytes. There may already be present a proliferation of the macrophages as a feature of the disease causing the splenomegaly. But because of the stasis and prolonged contact with the altered blood cells, there is a marked accentuation of normal phagocytosis and this in itself may lead to work hyperplasia of the reticulo-endothelial phagocytes. Thus prolonged stasis in a markedly increased vascular bed associated with proliferation of the reticulo-endothelial tissues in the spleen caused by the underlying disease is associated with additional work hyperplasia of splenic phagocytes, and this causes increased destruction of blood cells. The proliferated reticulo-endothelial tissue may occasionally produce abnormal amounts of lysolecithin or abnormal antibodies, *e.g.*, hæmolysins (humoral factors of blood destruction), leading to hæmoclastic crisis or hæmolytic anæmia.

Excessive destruction of the blood cells in hypersplenism is usually associated with a compensatory hyperplasia of the bone-marrow and delivery of mature cells into the circulation. This may prevent the onset of anæmia, granulopenia and thrombocytopenia for prolonged periods but the compensatory mechanism may fail at any time causing serious blood changes.

In the acute stage of kala-azar, splenic enlargement is small and the macrophages are proliferated and show marked parasitisation; vascular changes are minimal and large phagocytic cells containing ingested blood-cells are only few in number. There is a mild degree of leucopenia and anæmia that may well be due to the characteristic changes in the bone-marrow in kala-azar; and there is thus little evidence of hypersplenism. In the chronic stage, there is increase of vascular bed, stasis and marked proliferation of macrophages; large phagocytic cells containing ingested blood-cells are seen in fairly large numbers. The pathological picture is such that there is little doubt that hypersplenism is present and it is likely that hypersplenism is *one* of the important factors responsible for the causation of anæmia, leucopenia and thrombocytopenia in the chronic stage of kala-azar, the other important factor being the replacement of the formative elements in the bone-marrow by the proliferated and parasitised macrophages. Prolonged stasis and reticulo-endothelial contact of the blood cells induce phagocytosis that is not selective and all the three types of cells, red and white corpuscles and platelets, are destroyed in abnormally large numbers. The proliferation of the macrophages is much in excess of parasitisation and there is a marked increase of the globulin fraction due to overactivity of the proliferated reticulo-endothelial phagocytes in the spleen and elsewhere and this is manifested by the positive reaction with the aldehyde test in the chronic stage of kala-azar. With specific treatment there is usually a rapid regression of the parasitised and proliferated macrophages, and splenomegaly with its associated vascular and reticulo-endothelial changes is eliminated by what may be termed 'medical splenectomy' putting an end to the hypersplenic mechanism at work.

In the very advanced stage there is an extreme degree of increase of vascular elements associated with congestion and stasis; there is a marked increase of the reticulo-endothelial cells and there are numerous large phagocytic cells containing ingested blood-cells and some of these cells contain leishmania as well. All the factors for the presence of hypersplenism are present and this results in the well-known blood picture of marked anæmia, leucopenia and thrombocytopenia of advanced kala-azar. Humoral changes, *viz.*, hyperglobulinæmia, continue as during the chronic stage. With successful specific treatment of kala-azar there is decrease of splenomegaly associated with the disappearance of the parasitised macrophages and there is no longer any parasitic stimulus to proliferation of these cells; but at times the spleen does not return to normal size. It is likely that some degree of vascular dilatation and stasis persists along with residual fibrosis. These vascular factors induce phagocytosis of blood cells by the splenic macrophages and abnormally large numbers of blood cells are destroyed. There is thus demand for increased work of phagocytes and this leads to further hyperplasia of these cells and a vicious circle is established and a hypersplenic condition conti-

nues for years. Napier (1927) recorded that splenomegaly with anæmia may occur as a sequel of kala-azar; it is probable that persistence and progress of hypersplenic state as described above is responsible for such splenomegaly.

Splenectomy was practised with success in about 30 per cent of the cases in the treatment of kala-azar previous to the introduction of specific treatment with antimony; and even during recent years it has at times been followed by cure of drug-resistant kala-azar. Besides eliminating a large focus of infection with leishmania, splenectomy in advanced kala-azar leads to removal of an overactive organ that is a source of increased destruction of blood-cells. Improvement of the blood picture and general body resistance resulting from splenectomy thus helps the patient to overcome the leishmanial infection and if specific chemotherapy is carried out good results may at times be obtained even in very drug-resistant cases. It is quite probable that presence of marked hypersplenism in advanced kala-azar is a factor that interferes with the successful chemotherapy of the disease (Burchenal, *et al*, 1947; Das and Sen Gupta, 1950).

Summary

1. The histological changes in the spleen in different stages of kala-azar have been described in detail and the mechanism of causation and the effect of these changes have been discussed in the light of recent work on the physiology and pathology of the spleen.

2. It has been shown that definite signs of hypersplenism—pathological and clinical—develop in the chronic stage of kala-azar; and hypersplenism is very marked in the very advanced stages of the disease. Persistence of hypersplenic state after the cure of kala-azar may lead to chronic splenomegaly with anæmia as a late sequel of kala-azar.

3. The presence of marked hypersplenism in advanced kala-azar is probably one of the factors that interferes with the specific treatment of kala-azar and leads to apparent drug resistance. Splenectomy alone or in combination with specific chemotherapy has at times resulted in cure of drug-resistant kala-azar.

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OBSERVATIONS ON EPIDEMIC DROPSY*

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Introduction

Epidemic dropsy broke out in a Railway Division in 1945 and the first case was detected on 23-10-45 at a station named 'G' and on 24-10-45 at a station named 'D' and on 27-10-45 at a station named 'J'.

Soon after I took over charge, and on studying the records of supply and distribution of mustard oil it occurred to me that the supply of mustard oil just preceding the outbreak was from a common source, and this particular consignment of oil was suspected as the cause of the outbreak. The sample of oil collected from the distributing source at a station 'M' on 27-10-45 by the assistant surgeon, who himself developed the disease, was found on examination to be contaminated with argemone oil. The distribution of this consignment of mustard oil was, therefore, immediately stopped, and an attempt to collect further samples for examination failed. This consignment of mustard oil at station 'M' which was found argemone positive, on study, proved to be the same consignment which had been distributed to stations 'D', 'G' and 'J' preceding the outbreak.

Further occurrence of cases was reported from several other stations, and the supply of oil to all these stations was common and from the same source. It was, therefore, natural to conclude that the particular consignment of mustard oil distributed to these various places between 12-10-45 and 1-11-45 was the most likely cause of the epidemic. Appendix No. 1 gives details of the supply of mustard oil at different stations and the detection of the first case is very interesting and clearly supports the above view.

Further the oil from the houses of the victims during 12-10-45 to 1-11-45 was examined by me by the nitric acid test and was found positive for the presence of argemone oil in over 80 per cent of the samples.

A few days later, Dr. K. Mitra, Deputy Director Rationing (Nutrition), and Dr. K.K.P. Narshingha Rao, Assistant Director, joined me in the investigation and visited various stations with me.

Appendix No. 2 gives history of some of the cases investigated by them, which clearly incriminates mustard oil as the causative factor, and Appendices No. 3 and 5 give further evidence collected by me incriminating the oil. Dr. Mitra also agreed, on scrutiny of records, that the particular consignment of mustard oil distributed during 12-10-45 and 1-11-45 was probably the cause of the outbreak.

Samples of mustard oil from the bazar and from the houses of the victims were examined and only the

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latter were found positive to argemone oil—the approximate percentage being about 10. The similarity in the quantity of precipitate by Sarkar's test (about 10 per cent) in the sample of oil first examined at station 'M' and the oil from the houses of the victims was noteworthy. The remains of the sample of oil examined before purchasing the oil and another full bottle of oil purchased and kept away sealed were examined, and they showed identical precipitates by Sarkar's test (about 10 per cent)—the same percentage as was detected in the samples of oil from station 'M' as well as from the houses of the victims, thus clearly pinning down the mischief to this particular consignment of mustard oil distributed between 12-10-45 and 1-11-45.

Through the courtesy of Col. C. L. Pasricha, I.M.S., Director, School of Tropical Medicine, Calcutta, samples of mustard oil from the consumers' houses examined at the School of Tropical Medicine were found strongly contaminated with argemone oil.

Geographical Distribution

The disease broke out wherever this particular consignment of oil was distributed. The areas where it was not distributed for some reason or the other escaped entirely. The areas receiving their supply of oil from another source in the Division, which drew its mustard oil from U.P., also escaped. A few cases of epidemic dropsy reported in this area, on investigation, proved that they were also consuming the oil supplied to the affected areas.

Seasonal Distribution

Rains and bad stormy weather preceded the outbreak of epidemic dropsy in the last week of October 1945. The epidemic continued to grow and attained its peak on 3-12-45 after which it began to decline. The previous epidemic in this area was reported in January 1945, attained its zenith by the end of March 1945 and disappearing altogether by the end of April 1945. This outbreak was also preceded by rains. These weather conditions appear to be just coincidence and not connected with the causation of the disease. However, scarcity of mustard seeds for crushing in winter may be responsible for crushing of inferior seeds (a mixture of mustard and argemone seeds) and may account for both the epidemics appearing in winter.

Age, Sex and Family Incidence

A survey of 214 families consisting of 1232 persons *vide* Appendix 5, as well as an investigation of 476 victims of epidemic dropsy indicates that no age, sex or family escaped except those who did not consume the oil. Infants escaped as they were not fed on oil.

Occupation Incidence

In the beginning of the epidemic a large number of Class IV staff, the loco staff predominating, were affected and it was thought that the strain and stress of the occupation, exposure to wind and draught had some effect on the causation of the disease, but as the epidemic spread, it was apparent that consumption of mustard oil was the main causative factor.

Gangmen more or less escaped—the reason being that though they purchased the incriminated oil at the rate of As. 8 per seer, they sold it at the rate of Rs. 1-8 per seer and used only the "Ghani" oil from their neighbouring villages for themselves.

Racial Distribution

Here again a reference to Appendix 5 and Appendix 4 will indicate that Hindus, Muslims and Christians, who used the oil, developed the disease.

To be brief, I shall not deal with the various theories on causation of epidemic dropsy except the argemone poisoning theory. In this epidemic all those who used the incriminated mustard oil developed the disease, the severity of symptoms varying with the susceptibility of the individual, quantity of oil used, period over which used etc. In the previous epidemic of January 1945 only a trace of argemone oil was detected unlike the present epidemic in which 10 per cent was detected. This probably explains the explosive nature of the epidemic of October 1945.

Not a single case was detected in a person not using the incriminated mustard oil; but on the contrary there were many instances where the man was not using rice but using mustard oil and got the disease.

Clinical Pathology

Epidemic dropsy is a condition produced by irritant poisoning with argemone oil. The first symptoms, therefore, are those of gastro-enteritis. There is increased vascularity of the subcutaneous tissue, liver, lungs, spleen, heart and in some cases angiomatous nodules in the skin (commonly known as sarcoids) can be seen. A long continued ingestion or ingestion in large quantity without effective elimination affects the myocardium and produces symptoms of heart failure.

Clinical Picture

476 cases were investigated. The incubation period varied from 24 hours to 35 days depending upon the susceptibility and resistance of the individual, the quantity of argemone oil consumed and the length of consumption etc. Total no. of cases in employees were 1089 and in families 1294.

The cases which I have seen in this epidemic can be safely distributed in two categories:—

Category A—Cases under this group, by far the majority, start with anorexia, gurgling, rumbling in the abdomen and flatulence and ultimately diarrhœa, in some cases with 4 to 5 stools a day and in other severe cases upto 20 stools a day; a dark red flush on the face and pain in the body. The diarrhœa after 2-3 days begins to improve though it lasts about a

week but œdema of the feet and legs starts, sometimes going up to the whole length of the lower extremities. There is a temperature without rigor usually between 99 to 101°F accompanying the above symptoms. The diarrhœa may be followed even by constipation in some cases after the establishment of the œdema. In some cases the œdema preceded the diarrhœa and in others there was no diarrhœa but constipation. This œdema begins to improve after about a week and disappears in about 10-15 days.

In some cases the œdema is not very pronounced but appears only for a few hours during the day disappearing in the morning after night's rest.

The dark red flush is later replaced by pigmentation, general or patchy, being most marked over the nose and malar bones in a typical butterfly distribution, over the shin and inner parts of the thighs.

Barring tachycardia and slight dyspnœa on exertion nothing else was noticed. In some cases a soft bruit in mitral area and dilatation of the heart was noticed.

In some cases red angiomatous nodules varying in size from a pin's head to a silver two anna coin, were noticed over different parts of the skin, which on drying up left a pigmented mark. In one case, the eruption was herpetiform looking not actually vesicular, on the right side of the back running parallel to ribs. Angiomatous nodules were also seen arising from the gums and in one case it was of the size of a walnut and pedunculated.

Abortion and impotency were also noticed, the latter being most marked and the information volunteered by the patients. With the subsidence of the disease potency improves and is regained. Abortions also occurred in some cases.

Some patients complained of haziness and dim vision and seeing halos and colour round light, tension slightly raised, macula and disc not affected. They improved with rest and nourishing diet in most cases.

Category B—Here too, anorexia and symptoms of gastro-intestinal upset occur in the beginning, but the diarrhœa is not so marked as in category A.

On the other hand, there is tingling, pins-and-needles sensation and burning pain and sensation, sometimes excruciating and cramps in muscles of upper and lower extremities, mostly the former. The muscles get hot, stiff and painful and their movements are very much restricted. The site affected varies almost from day to day. Red flush on the face and affected parts is noticeable. No sensory changes detected, no wasting of muscles except from disuse.

Heart—only tachycardia; eye—no symptoms; knee jerks—diminished slightly; temperature—99-100°F.

In about 15 days acute symptoms subside.

The blood picture in 24 cases examined showed a little diminution in the percentage of hæmoglobin, a tendency towards leucopenia and a marked fall in R.B.C. count. Blood pressure—No low blood pressure was noticed.

In acute progressive cases, cardiac failure rapidly developed and death followed in a few days. Chronic and subacute cases recovered in a few weeks, generally in about 6 weeks. Prognosis depends on the severity of the attack and complications, but is favourable on the whole, the average mortality in this outbreak being about 4·4 per cent.

Diagnosis

1. This was made on clinical grounds, namely, (*a*) signs and symptoms of gastro-intestinal irritation like anorexia, gurgling, rumbling in the abdomen, flatulence and diarrhœa. Most interesting symptom in many cases being desire to eat but unable to eat after ingesting only a few mouthfuls of food due to the feeling of fullness in the stomach. (*b*) Oedema of the lower extremities. (*c*) Erythematous rash. ((*d*) Angiomatous nodules (sarcoids). (*e*) Pigmentation of the skin. (*f*) Presence of mild pyrexia. (*g*) Abortion and complications like glaucoma and heart affection.

2. Appearance of a number of cases simultaneously in the division, traced down to consumption of argemone-contaminated mustard oil distributed prior to the outbreak during a particular period and absence of cases in areas not supplied with such oil.

3. Neuritic type of cases were diagnosed from the history of consumption of the same incriminated oil as used by other members of the family and affected with œdematous type.

4. No response to treatment with vitamin preparations.

5. No evidence of deficiency of vitamin B in the diet of the sufferers.

Differential Diagnosis

The most important disease with which it is confused even today is *beri-beri*, which is due to avitaminosis and not to a specific poison like the one in the case of epidemic dropsy. The dry or paraplegic form of *beri-beri* is associated with peripheral neuritis specially of the lower extremities with early loss of knee jerks. The patient is emaciated and has an ataxic gait and the calf muscles are extremely tender and wasted. This picture is quite distinct from that of epidemic dropsy. In the wet form of *beri-beri* there may be some difficulty of diagnosis but if the cardinal symptoms of epidemic dropsy namely gastro-intestinal disturbance, associated with fever, erythematous rash, capillary dilatation, angiomatous nodules, glaucoma etc., are remembered which are not seen in *beri-beri*, the differentiation should be simple.

The next important disease to exclude is nutritional œdema (famine and starvation œdema). As the epidemic was confined to railway employees and their families the question of inanition does not arise.

Further, those suffering from inanition presented quite a different picture, namely, thin, markedly apathetic with characteristic mental picture of inanition, cold clammy skin, all organs and tissues shrunken with very little subcutaneous fat, subnormal temperature, and low blood pressure, sunken eyes, and wasting of the limbs.

Treatment

It is a pity that epidemic dropsy though not a vitamin deficiency disease is still being popularly treated on the same lines as when it was considered to be a form of *beri-beri*. A series of 18 patients treated in the indoor, were given multivitamin tablets and another series of 22 were treated without multivitamin tablets. Both the groups of patients took an average of 11½ days and 10 days respectively to be relieved of their symptoms and the fact that came out most prominently out of hospital treatment was that *rest in hospitalization was the most important single factor in the treatment of the disease.*

The line of treatment followed was:—

1. Stopping of ingestion of poison, *i.e.*, stopping the use of the incriminated mustard oil.

2. Promoting excretion of the poison by mild doses of saline purgatives and diuretics like citrates, extracts of *punarnava* etc. with addition of 10 to 20 minims of tincture ephedra vulgaris 3 times a day.

3. Treating the gastro-enteritis. No attempt was made to check diarrhœa in the initial stages but in severe and exhausting stages bismuth preparations and kaolin were used.

4. Treating the œdema *by rest* and general massage from periphery towards centre.

5. Treating complications symptomatically. In cardiac cases glucose orally and intravenously was freely used and diffusible stimulants like coramine, cardiazol, camphor-in-oil were employed with satisfactory results. Oedema of the lungs was treated by injections of atropine sulphate 1/200 gr. and inhalation of oxygen.

Small sarcoids subsided without any special treatment but one pedunculated sarcoid of the gum had to be removed.

Eye symptoms in most cases disappeared with rest and proper nourishing diet. Pilocarpine and eserine did not seem to have any effect in cases who complained of seeing halos and colours round the lights and where the tension appeared to be a little on the high side but without any dilatation of the pupil. In some cases ophthalmic surgeons differed, some suggested operation for glaucoma and others advised 'wait and see'.

Iron tonics and injections of liver extract were used with great benefit.

6. Nourishing diet—The patients were advised to drink milk and take eggs, fish and fresh fruits, *i.e.*, easily digestible diet. 8 ozs. of milk was given by the Railway to each patient who attended the outdoor or who was attended in the house by the railway doctor for a period of six to eight weeks. In addition multivitamin tablets, obtained through the courtesy of the American Friends Society, Calcutta, 3 a day for 15 days to each adult were distributed in the outdoor. People were advised to take barley water and soft food like eggs, fish, meat and soft rice. Wheat preparations like chapati and *moong dal* etc. were allowed according to the condition of their digestion, the chief object being to give food which will not irritate but on the other hand would be demulcent and easily digestible.

Preventive measures—(1) The staff was advised not to use mustard oil.

Some people in spite of warning continued to consume the incriminated mustard oil in some form or the other like one case who stopped cooking his food in the oil but continued to take it in pickle (*achar*). (Oil from this *achar* was found positive by nitric acid test). Some patients and those who did not take rest and kept on moving about took much longer to recover.

Some people used this oil for the purpose of burning light and others must have used it for rubbing on the body also but no case came to my notice where the disease was attributed to rubbing of the body with the incriminated oil though theoretically the possibility of argemone poisoning through this channel is not unlikely.

(2) Hospital accommodation was increased from 24 beds to 36 beds by providing 12 extra beds, but the maximum number of patients at any one time admitted in the hospital was only 30, *i.e.*, 6 short of the provision made. Hospital accommodation could be increased if required, but people did not like hospitalization. The next best alternative to minimise exertion and encourage rest to the patients was, therefore, adopted and extra doctors were posted at important stations and the patients were attended to in their houses, and were given medicines, milk and multivitamin tablets.

(3) Use of ground-nut oil was encouraged instead of mustard oil.

In July and August, 1949, three cases of epidemic dropsy were seen by the author—one at Moradabad in an Anglo-Indian (Mr. E.) who gave the history of taking mustard oil purchased by his servant daily from the market, and the other two from Bareilly who also gave history of using mustard oil.

In the case of the Anglo-Indian at Moradabad, the mustard oil examined by nitric acid test proved positive to argemone oil but proved negative to Sarkar's test; possibly as the oil brought by the servant for examination was not the same as used by Mr. E. before developing the disease for obvious reasons. The oil from the two cases in Bareilly could not be procured

for examination as they had both stopped using the oil after the development of the disease.

In January, 1950, three cases of epidemic dropsy from Bareilly were seen by the author. Two of them could produce the mustard oil that they had been using before the development of the disease and this proved argemone-positive to nitric acid and Sarkar's test. The third one could not produce any oil.

ACKNOWLEDGMENT

My most grateful thanks are due to Dr. Mitra and Mr. Rao for their kind assistance in these investigations and to the Chief Medical Officer, E. I. Railway, Dr. S. S. Kent, who permitted this paper to be published.

SUMMARY

1. The outbreak of epidemic dropsy in the Railway Division was caused through the consumption of a particular consignment of mustard oil found adulterated with argemone oil and distributed during a particular period (12-10-1945 to 1-11-1945) to the Railway employees in the Division.

2. Only those who consumed the oil irrespective of age, sex, occupation and race developed the disease without exception.

3. The incubation period varied from 1 to 35 days, average 7 days.

4. The œdematous type predominated greatly and the incidence of neuritic type of cases was a little below 2 per cent.

5. The incidence of angiomatous nodules (sarcoids) and eye symptoms and abortions was 4·4 per cent, 9·3 per cent and 6 per cent respectively.

6. Impotence and insomnia were other marked symptoms—the incidence being 27·7 per cent and 21·6 per cent respectively.

7. Stoppage of ingestion of the poison, rest, elimination of the poison by the use of saline purgatives and diuretics, and administration of iron tonics and liver extract formed the main line of treatment. Vitamins were not found to be of any use.

8. The percentage of mortality roughly works out to be 0·5 per cent in the employees and 2·3 per cent in their families, the total number of epidemic dropsy cases amongst employees being 1089 and in their families 1294.

APPENDIX NO. 1

DISTRIBUTION OF A PARTICULAR CONSIGNMENT OF MUSTARD OIL BETWEEN 12-10-45 AND 1-11-45

Destination	*Date of supply of oil*	*First case of epidemic dropsy detected*
Shop at station 'M'	14-10-45 19-10-45	25-10-45 at station 'M'
Shop at station 'J'	14-10-45 15-10-45	27-10-45 at station 'J'
Shop at station 'G'	13-10-45 15-10-45 17-10-45	23-10-45 at station 'G' 28-10-50 at station 'G$_1$'
Shop at station 'DS'	15-10-45 17-10-45 24-10-45	5-11-45 at station 'DS'
Shop at station 'D'	12-10-45 18-10-45 25-10-45 27-10-45 28-10-45 31-10-45	24-10-45 at station 'D'
Shop No. 1 ..	24-10-45	5-11-45 at station 'N'
Shop No. 2 ..	24-10-45 27-10-45	2-11-45 at station 'P'
Shop No. 3 ..	Got its supply from station 'DS'	31-10-45 at station 'B'

APPENDIX NO. 2

HISTORY OF CASES TAKEN BY DR. MITRA INCRIMINATING MUSTARD OIL AS THE CAUSATIVE FACTOR

(*a*) One K., a dresser in a local non-railway hospital developed epidemic dropsy along with other railway employees at station 'M'. K. admitted having obtained the mustard oil through a railway employee from the railway grainshop from the particular consignment. He was, however, getting supply of rice from the bazar.

(*b*) Head train examiner at station 'M' did not draw any rice ration from grainshop but drew mustard oil and all the five members of the family got the disease.

(*c*) One Kh., a hotel keeper at station 'M' purchased oil from a grocery very close to the railway station. This grocery was selling mustard oil sold to it by railway staff receiving their oil from grainshop at -/8/- per seer as against the bazar price of mustard oil at 1/8/- or 1/12/- a seer. All the three members of Kh.'s family contracted the disease. He obtained his supply of rice from the bazar.

(*d*) Bh., a sweetmeat hawker in the bazar purchased grainshop mustard oil from railway employees and contracted the disease. He did not take grainshop rice.

(*e*) One S.M.R., clerk, running shed at station 'G' did not draw his ration of rice after the first week of September which fact was verified from his ration card but he received his supply of mustard oil from the railway grainshop in October. All the four members of his family including himself contracted the disease.

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(*f*) One B., leading fireman, does not take rice but wheat instead; used mustard oil from the grainshop and contracted the disease along with his family.

(*g*) One M.H. did not take any rice from the grainshop during the month of October but he drew his ration of mustard oil on 16-10-45 and contracted the disease.

(*h*) M.E., driver, gave up eating rice due to an attack of epidemic dropsy in February 1945 but he used mustard oil and again developed epidemic dropsy.

(*i*) One J.S., did not take rice from the first week of October but consumed mustard oil and contracted the disease.

APPENDIX NO. 3

FURTHER EVIDENCE COLLECTED BY THE AUTHOR INCRIMINATING MUSTARD OIL AS THE CAUSATIVE FACTOR

1. G.D., waterman, purchased oil on 12-10-45 got diarrhœa and vomiting on 13-10-45. Stopped use of oil and got well. Incubation period 24 hours.

2. M. Bash., engine ticket clerk took ration on 6-10-45 but his son-in-law, Md. M., fitter, living and messing with him got oil on 19-10-45 and all suffered more or less.

3. R., servant of Mr. E., got the incriminating oil and used it as also his mother, both got epidemic dropsy mildly, stopped oil, got well after 10 days, started using the same oil again and both got the disease very badly again.

4. Mr. A.B., purchased the incriminating mustard oil in the last week of October but did not use the oil and escaped the disease.

5. Mr. A.G., purchased mustard oil before the incriminated period but was not affected. He however took a loan of the incriminating mustard oil from V. B. M. who had purchased mustard oil on 17-10-45, the incriminated period, and this oil was used by his servant who developed the disease.

6. C.H.M., purchased oil before the incriminated period, the whole family escaped the disease but his eldest son who is a guard and took meal outside the house in railway running rooms who were using incriminating mustard oil developed the disease.

7. H.N.M., purchased oil before the incriminated period and whole family escaped the disease except his wife who shared food in a neighbour's house who used the incriminating mustard oil and was suffering from epidemic dropsy with his family.

8. 17 families consisting of 92 persons, who do not use oil habitually but use rice, escaped the disease.

9. 11 families consisting of 52 persons purchased the incriminating mustard oil but did not use it, none affected.

10. 45 families consisting of a total of 230 persons used this incriminating oil and all were affected with epidemic dropsy.

11. 28 families consisting of 171 persons purchased the incriminating mustard oil and some were affected and others not—reason of escape being non-use of this oil.

12. 113 families consisting of 687 persons did not purchase and use the incriminating oil and escaped the disease.

13. Absence of the outbreak in the civil population except amongst those who got the incriminating mustard oil through some railway employee and used it (*vide* Appendix No. 2).

APPENDIX NO. 4

Total No. of cases investigated = 476 { Oedematous—467 / Nervous—9

	Adults		Children (between 2 & 12 years)	
	Male	*Female*	*Male*	*Female*
Hindu ..	87	36	16	14
Muslim ..	126	79	55	60
Indian Christian ..	3	—	—	—
Total ..	216	115	71	74

Incubation period { Minimum .. 1 day / Maximum .. 35 days / Average .. 7 days

ANALYSIS OF IMPORTANT SIGNS AND SYMPTOMS, EXCLUDING OEDEMA, GASTRO-INTESTINAL SYMPTOMS, PATCHY PIGMENTATION WHICH WERE MORE OR LESS GENERALISED

Signs & Symptoms	*No. of cases*	*Percentage*
Fever	33	7·0
Generalised pigmentation ..	37	7·7
Angiomatous nodules ..	21	4·4
Cardiovascular involvement	119	25
Pulmonary involvement ..	103	21·6
Liver	57	11·9
Spleen	20	4·2
Piles	37 (of 331 adults)	8·9
Eye (vision disturbances) ..	39 („ „ „)	9·3
Impotenc	60 (of 216 males)	27·7
Abortion	7 (of 113 females)	6
Knee jerk (Sluggishness) ..	40	8·4
Insomnia	103	21·6

APPENDIX NO. 5

Survey of 214 Families Consisting of 1232 Persons Taking Incriminating Mustard Oil and All Affected

Total No. of persons	Adults		Child		Hindu		Muslim		Anglo-Indian		Total No. of Families	Deaths
	Male	Females	Male	Females	Family	Members	Family	Members	Family	Members		
230	69	68	50	43	20	98	25	132	..	..	45	1

Affected and Escaped Accounted for by not Consuming the Incriminated Oil

Total No. of persons	Adult Male		Adult Female		Child Male		Child Female		Infant		Hindu		Muslim		Anglo-Indian		Total No. of families	Death
	Affected	Escaped	Affected	Escaped	Affected	Escaped	Affected	Escaped	Affected	Escaped	Family	Members	Family	Members	Family	Members		
171	39	12	37	10	21	15	15	13	..	9	13	72	15	99	..	..	28	1

Purchased Contaminated Oil But Did Not Use (hence Escaped)

Total No. of persons	Adult		Child		Infant	Hindu		Muslim		Anglo-Indian		Total No. of families
	Males	Females	Males	Females		Family	Members	Family	Members	Family	Members	
52	16	16	8	9	3	8	40	3	12	..	..	11

Did not Purchase the Incriminated Oil (hence Escaped)

Total No. of persons	Adult		Child		Infant	Hindu		Muslim		Anglo Indian		Indian Christian		Total No. of families
	Males	Females	Males	Females		Family	Members	Family	Members	Family	Members	Family	Members	
687	206	193	147	128	13	85	530	24	135	3	20	1	2	113

Non-Users of Mustard Oil

Total No. of persons	Adult		Child		Infant	Hindu		Muslim		Anglo Indian		Total No. of families
	Males	Females	Males	Females		Family	Members	Family	Members	Family	Members	
92	32	29	15	13	3	4	33	2	8	11	51	17

PRACTITIONERS' CORNER

NON-SPECIFIC URETHRITIS (URETHRAL DISCHARGE)

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Whenever we talk of urethritis, gonococcal infection is always thought of as the causal factor. This is true to a great extent. But non-gonococcal urethritis is not uncommon. We see quite a number of such cases in our practice. Here I am trying to analyse the causes of such non-gonococcal urethral discharges.

In order to understand the subject more clearly, it will not be out of place to say a few words about the pathology of urethral discharge. The urethral mucous membrane has the peculiarity of developing a prompt purulent response to almost any type of irritant. The irritating toxin acts on the interstitial tissue and on the free mucosal surface. The degree and duration of the purulent response depend upon the strength of the irritant and duration of its action. Repeated mild irritations prolong the duration of this purulent discharge. Under these adverse conditions a change takes place in the lining cells of the canal. A protective squamous type of epithelium replaces the normal columnar cells. At times over-production of such cells takes place which desquamate in large numbers producing a discharge which cannot be differentiated from pus macroscopically. A similar condition of the epithelium is found in immediate proximity to the obstruction. Furthermore, the membrane gets sensitized to the toxins and shows discharge whenever it is subjected to any other kind of toxin, either exogenous or endogenous. General tissue resistance has its part to play; whenever there is any lowering of resistance the mucous membrane becomes more vulnerable to the effects of toxins which in normal healthy condition it would resist very easily.

ÆTIOLOGY

This may be divided into several groups according to their order of frequency:

1. Deeper-lying pathology somewhere in the urinary tract. 2. Irritants introduced from outside. 3. Virus infections. 4. Foreign bodies. 5. Systemic diseases. 6. Parasitic infections. 7. Idiopathic.

The urethra is the drain for the elimination of noxious materials which pass through the blood. So, it often harbours large varieties of bacteria which are found in non-specific urethritis without causing any harm to it. When the normal healthy condition of the urethra is disturbed as a result of the action of any one or more of the above ætiologic factors, these commensals become pathogenic and the signs of urethritis become evident. In many of the so-called chronic gonorrhœa cases showing urethral discharge gonococci are not seen. Instead, quite a large number of normal bacteria are seen along with the pus cells and epithelial cells. This is due to the sensitiveness of the tissue devitalised as a result of gonococcal infection.

Chancres, chancroids and tuberculous ulceration within the urethra will all show signs of urethritis. These are really not non-specific; they have to be borne in mind while investigating non-specific urethritis.

Excepting obstruction in conditions such as strictures or narrow external meatus, practically all chronic or acute discharge are secondary to infection in the smaller mucous channels emptying into some portion of the urethra. The most common feeding foci are found in the gland of chronic prostatitis due to any kind of infection. Discharges in such cases are seen only in the shape of a drop of pus in the morning which the patient might not notice until he has a definite cause for suspecting infection. Very careful examination of the patient and a study of the detailed history of the case must precede a diagnosis of non-specific urethritis. Occasionally, cases of urethritis show profuse purulent discharge as a result of the rupturing of some submucosal pocket in the posterior urethra.

"Irritants introduced from outside"—mostly these are seen as a result of abortive treatment after some exposures to infections, as for example,—

(*i*) irrigation by strong potassium permanganate solution or silver preparations, etc.

(*ii*) secondly due to frequent use of chemical contraceptives.

(*iii*) thirdly—effects of irritating vaginal discharges particularly before menstruation.

(*iv*) finally irritation of instrumental trauma by way of instrumentation as treatment or use of medicated bougies as prophylaxis. This results in tissue necrosis and discharges continue until the necrotic areas are completely healed. Discharge is also found if a metal or rubber catheter remains inserted for some time.

There are cases of urethral discharges in which we cannot elicit any definite ætiological factors and they are not easily amenable to treatment. This type may be called idiopathic type of non-specific urethritis. But, lately many cases of such type have been proved to be due to virus infections.

Urethral discharges due to foreign bodies are not very uncommon. These are in a majority of cases due to perverted sex psychology. For getting pleasureable sensation many kinds of foreign bodies—such as narrow bits of wooden sticks, straw pipes, hair pins, even sewing needles are pushed in and these are sometimes found lying inside the urethra, producing persistence of urethral discharge. Sodomy is a type of sex perversion and in some cases leads to severe infection of the urethra.

In many long-continued or protracted illnesses like typhoid fever or in measles, mumps and influenza, discharges from the urethra are seen. They are really due to the activities of normally inhabiting bacteria, or the causative organisms of such illnesses eliminated through the devitalised urethral canal. During the process of elimination the organisms infect the glands

and pouches which cause discharge, though rarely, in normal condition; the urethra may be infected by organisms like B. coli, streptococci, staphylococci, pneumococci, diphtheroid bacilli which will give rise to symptoms like acute gonococcal infection, but here the inflammatory reactions are not so severe and rarely extend to the posterior urethra. The acute symptoms and pain disappear in 24 to 48 hours' time.

Trichomonas vaginalis infection, as the cause of leucorrhœal discharge in women is quite common but it is also found as the causative factor in some cases of urethral discharge in males. The variation of pH of the urine is a normal thing, and this prevents the thriving of such parasites in the male urethra. In suitable conditions, it infects the urethra and prostate.

Lastly, a large number of patients particularly young men visit the physician with complaints of discharge. Possibly in a majority of them on examination no discharge will be detected. They will give a history based frequently on imperfect or untrained observation of having seen it off and on in the day time. In most cases such discharge, if seen at all, will be found not purulent but slimy mucoid in nature. Some will give a history of passing white discharge particularly during defæcation. On examination, these smears, in most of the cases, reveal nothing but mucus, containing sometimes a few epithelial cells, innocuous bacteria and spermatozoa. Many of these cases will give a history of excessive sex indulgence by way of masturbation or sexual intercourse, considerable consumption of alcoholic drink which irritates the urethra resulting in persistent congestion of the parts and too much secretion of mucus. In short, the factors responsible for urethral discharge other than gonococci are:—

A. (*i*) Intraurethral chancre.
(*ii*) Chancroid.
(*iii*) Tubercular ulcerations.

B. Usually secondarily infected urethral glands, prostate, etc., of the patient suffering from gonorrhœa—the common organisms are streptococcus, staphylococcus, B. coli, pneumococci, diphtheroids, strepto. fæcalis, proteus vulgaris, etc.

C. Virus infection.

D. Chemicals—potassium permanganate, silver preparations, etc., also various brands of contraceptives.

E. Trichomonas vaginalis infection.

F. Growth, cysts, etc., inside the urethra.

G. Foreign bodies, stone, strictures.

H. Trauma, pinpoint meatus, balanoposthitis.

I. Excess of alcohol and sex indulgence.

Signs and Symptoms

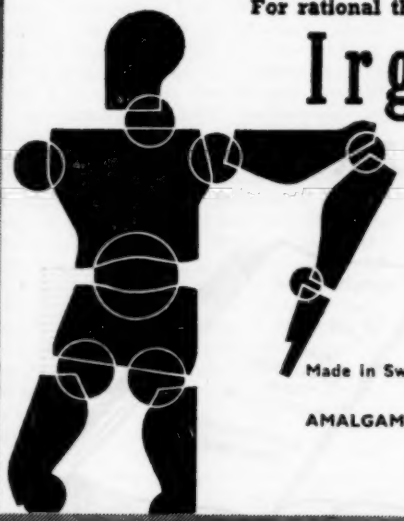
Usually young adults up to the age of 40 years are affected. Stricture as a cause occurs generally in the older age-group; the urethral discharge will be there and the patients' complaints are more or less, like gonococcal urethritis but not so painful or severe. The duration of illness may be short or long according to the ætiological factors.

Diagnosis

The diagnosis is not so simple as in gonococcal infection. In many cases of chronic gonococcal infections causative organisms may not be found so easily because of their scantiness. Simple finding of some bacteria in the smears will not give clue to the cause of the malady. Very careful history should be taken. Repeated examinations for elimination of gonococcal infection by microscopical and cultural examination are primarily needed. Urethroscopy is of great value in finding out the conditions of urethra which might help a lot in arriving at a diagnosis, *e.g.*, soft or hard infiltration of urethra sago-grain urethra, etc. Microscopical examination of the smears may give many clues. As for instance, the discharge in the urethral stricture or devitalization of the tissues due to prolonged action of chemicals, will show large numbers of bacteria, quite fair number of epithelial cells (squamous variety) and scanty leucocytes. Similarly, results of strong chemicals, for short duration, will show a large number of pus cells with no bacteria in them. In cases of irritation due to vaginal secretion smears will show pus cells and a fair number of bacteria normally inhabiting the vaginal canal. Also, where prolonged use of irritant fluids takes place the urethra goes on producing a large number of squamous cells for protecting its surface and shedding of the cells takes place while the smear will show nothing but heaps of epithelial cells in late stages, the smear may contain some bacteria too. The persistence of a large number of pus cells with very scanty bacteria in the discharges proves it to be due to virus infections. The condition is commonly known as "Abacterial pyuria". Another such condition which is believed to be due to the activities of virus or viruses, causing besides urethritis, polyarthritis and inflammation of eye, *e.g.*, conjunctivitis, episcleritis and iritis, etc., is known as "Reiter's disease". No bacteria are found in usual smear or culture examination. Often in these cases eruption on the glans penis is noticed.

Treatment

(1) *Removal of the underlying causes*—If any deeper pathology is present local treatment will not be of much use. Methods of exposing the hidden foci may have to be found for free drainage. When mucoid discharge is present, the simple use of astringent fluids to the urethra will stop it. Any source of trauma or irritation should be stopped altogether. Alkaline diuretics and hot hip baths are quite beneficial. Over-treatment is bad. It is usually resorted to because of the slow progress of improvement. Any weakness of or damage to the mucous surface requires a few weeks to regain the normal condition. During this time no attention is to be paid to the discharge and the patient should be convinced of the justification for stopping the treatment. Sometimes, after removal of the cause, dilatation with medium or full size urethral sound on several occasions will give the desired results, particularly in 'sago-grain' urethritis. At times, instillation



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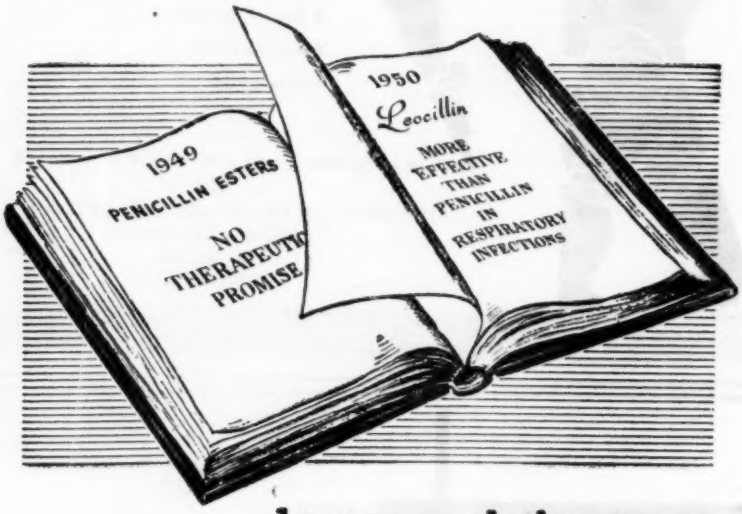

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of 1 or 2 per cent silver nitrate solution or 5 per cent argyrol solution into the posterior urethra and irrigation with mercury oxycyanide 1 in 6000 solution will solve the problem. In cases of sexual excess, abstinence, and bromide in good doses are helpful. In diphtheroid infections the course of the disease is very chronic. Often it is seen that the patients recover spontaneously in a few months time. In very chronic cases, diathermy treatment particularly to the prostate, gives very good results. In trichomonas infection, change in the reaction of urine is the primary necessity. Retaining of 1 in 4000 solution of neutral acriflavine lotion in the bladder also acts very well. In discharges due to irritating vaginal discharge, the treatment of the partner should begin first by asking her to use douche of sodium bicarbonate solution before going to bed and also asking the man to use condom during coitus. Penicillin or the sulpha group of drugs are of very little use in these cases. Streptomycin, aureomycin and terramycin are found quite effective in some cases. These are very effective where virus infection is suspected and also where pneumobacillus or streptococcus fæcalis are found as causative factors. Finally—improvement of general health by the use of tonics, vitamins, etc., will go a long way, towards recovery. In abacterial pyuria best results are seen when the condition is treated with 3 to 6 injections of arsenic (914) intravenously at one week's interval. In Reiter's disease artificial fever induced by inductothermy or by intravenous T.A.B. vaccine produces very good results.

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TREATMENT SERIES

SPRAIN—ITS DIAGNOSIS AND MANAGEMENT

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To describe any minor traumatic ailment of a joint as a sprain is a temptation which must be resisted for it is a distinct clinicopathological entity. Sprain is a partial tear of a part of a capsule or a ligament (rarely a muscle) which is not sufficient to give rise to an unstable joint. The tear which may be anywhere in the ligament is usually confined to the regions of its bony attachment. Of the indirect forces or strains responsible for sprains, angulation, torsion, shear and distraction (only in the upper limb in children), angulation is the most common. Direct forces rarely cause a sprain. These various forces are diagrammatically represented in Fig. 1.

Effect of such indirect forces across the shaft of bones would cause fractures but when these act at the joint level the soft tissues suffer most. Any raised feature around and on the articular surfaces (either to increase stability *e.g.*, rim of acetabulum of the hip, or

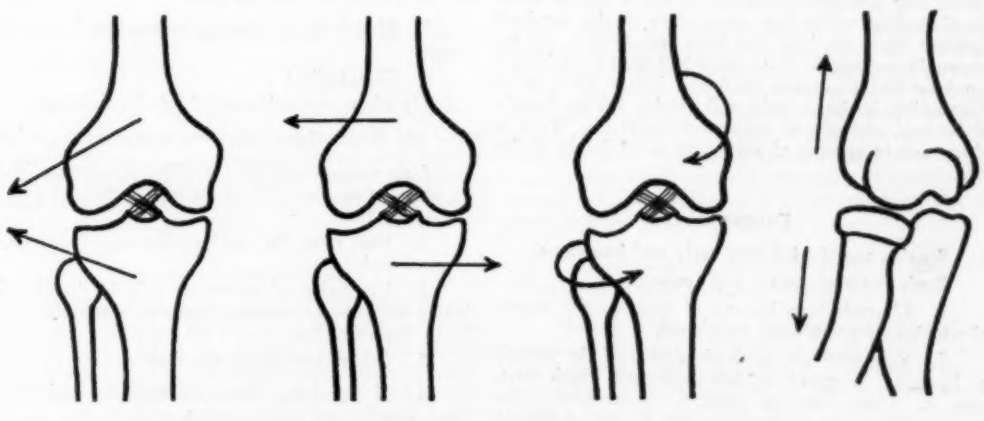

FIG. 1. Diagrammatic representations of various forms of indirect strains responsible for joint injuries: A. Angulation strain. B. Shearing strain. C. Torsional strain. D. Distractive strain.

for attachment of ligaments, *e.g.*, tibial spine of knee joint) which prevents complete separation of the members may be sheared off. Avulsion of bony attachment of a ligament in complete tear is common. To stress the oft-quoted aphorism "It is easier to break a bone than to tear a ligament." Various forms of injuries sustained in joints are diagrammatically represented in Figs. 2 and 3.

A B C D

FIG. 2. Diagrammatic representations of the various forms of injuries sustained in a joint due to indirect strains as shown in the Fig. 1: A. Partial tear of medial collateral ligament of the knee near its upper attachment. B. Avulsion of the upper attachment of medial collateral ligament with a bone chip, tilting of the articular surfaces has been shown. The lower attachment of the medial collateral has also been shown as a complete tear. C. Synovial fringes have been shown to have been caught between the articular surfaces, the medial meniscus has been split longitudinally—all these are responsible for hæmarthrosis D. Dislocation of the knee medially has been shown

FIG. 3. Diagrammatic representation showing lateral subluxation of the ankle joint with horizontal fracture of malleoli at joint level.

ed ligament, full play of the joint is prevented because of the reflex pain produced by stretching of the newly formed short fibres. Early pain in a sprained ligament is due to hæmorrhage and œdema. There is a tendency for the pain to increase during the first couple of days, this is attributed to superimposed reactionary œdema. Persistent pain specially during movement is due to fibrosis of healing which has taken place in the sprained ligament while the joint had been immobilised. In an uncomplicated sprain if the joint had been immobilised too long and treatment continued longer for fear of "incomplete healing", pain will persist due to fibrosis of healing, and disuse œdema of inactivity. This is often seen in sprains of ankle and small joints of the foot.

DIAGNOSIS

Sprains are divided into early and late cases.

Early cases of sprain will present:—

1. Characteristic history of trauma, the nature of which may not always be elicited.

2. Pain over the strained portion of the capsule or ligament, increased by any movement which stretches it. Limp may be present. Immediately after trauma one may walk normally, but it may be difficult for him to walk without limp later.

3. Mild swelling, doughy feel from local subcutaneous œdema.

4. Tenderness over the sprained ligament.

5. No instability when the joint is forced to stretch the particular portion of sprained capsule or ligament. This test may have to be done under anæsthesia if pain is severe.

6. In an uncomplicated case there usually should not be any effusion in the joint.

7. Muscle spasm limiting movements is as a rule absent.

8. Skiagraphy:

(*i*) Plain—no evidence of any local injury.

(*ii*) Strained positional—no instability of the joint.

Late cases—(untreated)—These cases have healed by fibrous tissue with the joint in immobilised position for a long time.

1. Pain over the sprained ligament if stretching is continued.

2. Limitation of movement only in the direction which stretches the sprained ligament or capsule (usually in one direction.

3. Other movements are free.

4. If disuse has been prolonged the patient may limp, particularly with a sprain of foot.

5. Effusion may be present in a knee joint and due to quadriceps atrophy it is insufficient to maintain posture.

PATHOLOGY OF HEALING OF A SPRAINED LIGAMENT

After partial tear of a ligament a small local hæmatoma surrounded by a zone of traumatic and reactionary œdema forms. Granulation tissue replaces this small hæmorrhage and finally fibrous tissue replaces the granulation tissue. If fibrosis is allowed to form while a joint is at rest in the shortened position of the sprain-

METHOD OF TAKING STRAINED POSITIONAL SKIAGRAM

Under general anæsthesia, preferably intravenous pentothal sodium 0·25-0·5 gm., the joint is forced open in the direction which caused the pain. If the ligament is completely avulsed the joint will open up and return with a muffled click when the strain is withdrawn. This can be done in X-ray department, and skiagrams are taken in the position of strain to check up the clinical finding. In case of a complete tear of external lateral ligament, the talus will tilt in strained positional anteroposterior skiagram of ankle joint (Fig. 4).

TREATMENT

Principles.

A. *Fresh cases*:

1. *First Aid*—Cold application (ice) soothes the part and controls local œdema and hæmorrhage.

2. Uncomplicated cases of sprain do not usually need complete immobilisation as this will increase the period of stay off from work. Healing should take place with fibres elongated.

3. The sprained portion should be given rest from undue stretching by—

(*a*) Suitable relaxation position maintained by straps. Elastoplast will be ideal for this purpose.

(*b*) Suitable relaxation position by alteration of shoes.

4. Tension pain due to local œdema and hæmorrhage can be suitably controlled by—

(*a*) General sedatives.

(*b*) Local analgesics—Novocain injection (2 per cent).

(*c*) Local firm strapping by Elastoplast.

(*d*) Dispersion by local massage.

B. *Late cases*:

Manipulation to tear the contracted fibrous tissue is carried out by moving the joint (when it is limited) through the full range *once* under general anæsthesia. Subsequent full function in spite of slight immediate discomfort is insisted upon.

REGIONAL CONSIDERATION

Shoulder—Sprains are common in older persons either due to fall on the shoulder which stretches the front or back part or the lower fibres of the capsule while trying to get in a running train or bus. Comparative muscle weakness in the aged may be a predisposing factor. Sometimes it may be associated with more distant injuries as a fracture of Colles, forearm or intercondylar fracture at elbow. Such persons often later develop capsulitis (collagen disease, periarthritis, frozen shoulder. It is possibly an inflammatory degenerative change brought in by such minor trauma. Diagnosis has to be made from supraspinatous tendon tear, traumatic synovitis, hæmarthrosis, fracture and/or dislocations. Absence of mid-range (60°-120°) pain while lifting the shoulder, effusion, late ecchymosis about the tendons of insertion of deltoid and biceps and radiological evidence will help differentiation. Diagnosis rests on pain produced by movement in a particular direction which stretches the particular portion of the capsule.

Treatment—Depending on the ability to bear pain, abduction splint with forearm in external rotation is given for first few days while the patient will actively contract all the muscles of the limb and move all unaffected joints. Soon when the pain has come within the limit of forbearance he discards the splint and starts active movements of shoulder. Should this minor trauma be the starting point of periarthritis more prolonged rest, eradication of sepsis, diathermy and massage should be instituted.

Old cases of sprain where there has been some limitation of movement (which is always in one direction) require manipulative treatment.

Elbow—Sprains of anterior or posterior parts of capsule and collateral ligaments are rare. Common origin of extensors (tennis elbow is one type) and flexors are sprained often. The management is under the same lines as elsewhere. In the acute stage calf-and-collar sling and active movements are given. Strapping to prevent œdema and effusion is not usually carried at elbow. Massage and passive movements are contra-indicated at elbow and small joints of hands. Movements must be made to recover at their own rate by active movements only.

Wrist and Carpometacarpal Joint of Thumb and small Joints of Fingers—Sprain of carpometacarpal joint of thumb is fairly common owing to the multiplicity and range of movements and heavy duty demanded on this joint compared with its fragile structural peculiarity. Sprain of small joints of fingers including metacarpophalangeal joints are also common. Complete avulsion of collateral ligaments and distal attachment of the dorsal extensor expansion is usually associated with chip fracture which thus needs careful distinction from sprain.

Treatment—Firm strapping (Fig. 5) and active movements are all that are necessary.

There is always some fusiform swelling and limitation of movements of interphalangeal joints for many weeks, but the condition clears up eventually. Passive stretching or manipulation is contra-indicated even in late resistant cases, for these joints are peculiarly susceptible to this and further deterioration of functions occurs.

Hip—We have not seen a case of sprain of hip joint. The so-called painful hip in children after trauma with slight limitation of extension in this joint though simulating a sprained capsule is in reality a transient synovitis of children from septic foci (mainly from tonsils and adenoids).

Knee—Sprain of the collateral ligaments are common, particularly of the medial collateral ligament. Being subcutaneous in position, its diagnosis is easy and the clinical manifestations are definite. It needs differentiation from total tear which results in instability and can be diagnosed with the aid of a strained positional skiagram taken under general anæsthesia. Such a skiagram shows tilting of tibial surface medially. Treatment on the lines as enunciated under general principles is carried out. Local 2 per cent Novocain infiltration, and altered shoes with crooked and elongated heel of Thomas are of benefit in these cases. Strapping is seldom done to prevent local œdema.

Ankle—Lateral instability of the subtaloid joint which permits eversion and inversion has given the ankle joint a peculiar liability to sprain. Of the two collateral ligaments, deltoid sprain is rare. Of the three bands of the lateral ligaments the anterior and middle bands are commonly affected (Fig. 6). Careful differentiation from total tear is necessary. There is seldom a chip fracture of the tip of the malleolus in complete tear. Strained positional skiagram will show usual tilt of talus (Fig. 4).

Treatment—Cold applications to control local effusion and hæmorrhage are useful. Firm Elastoplast strapping should be applied to prevent further œdema of the region. The strapping should be applied in such a way that the affected ligament is relaxed and prevented from overstretching (Figs. 7 and 8).

A wedge-shaped sorbo rubber pad incorporated on the outerside of the heel would help relaxation (Figs. 9 and 10). Raising the sole of the shoe on the outer side has been known to be of help. Complete immobilization is not indicated. The patient should be ambulant throughout.

Small Joints of Foot—Painful sprain of small joints of foot is common among athletes. Strapping helps overstretching from unnatural movements, and by its support prevents local effusion and œdema. Active movements should commence at once. Weight-bearing is permitted if there is no evidence of a fracture. There is a tendency to give too much of rest in this condition with the result that a persistent painful condition of the foot develops. This specially causes distress while bearing weight.

Lumbo-Sacral Joint—This joint being at the junction of two curves, the site of great shearing strain of weight bearing and pivot of weight transmission to the lower limbs, is more liable to sprains than other vertebral joints. Interarticular joint capsule, disc capsule, lumbosacral ligaments, interspinous and interlaminal ligaments are strained. It is not possible to differentiate the exact site of sprain owing to the deep position of the joint. The definite clinical picture of pain, sciatic scoliosis, rigidity of spinal muscles with limitation of all movements specially of extension, positive bilateral straight leg raising test, local tenderness with the characteristic history of lifting weight, stopping suddenly while running on uneven ground, unilateral twisting of the trunk while grappling at games etc. are diagnostic.

Other Joints of Vertebræ—Cervical spine, the most mobile region, suffers from sprain next in frequency to the lumbosacral joint. The composite nature of the joints obviously make all muscles and ligaments vulnerable. Characteristic history of indirect trauma, pain, rigidity, limitation of movements and negative radiological evidences of subluxation and/or fracture are the clues to diagnosis.

Sacro-Iliac Joint—Unevenness of sacro-iliac joint surfaces and comparatively little movement permitted at this joint make it liable to be strained by unilateral jerks in weight-bearing, when transmitted through the top part of the joint to the *ilio-pelvic* ridge. Even the slightest movement locks the joint surfaces in a new position, so it is not possible to differentiate it from borderline subluxation. Local tenderness, sciatic scoliosis, history of trauma, positive unilateral straight leg raising, absence of radiological findings are diagnostic. Comparative freedom of spinal movements while sitting is a feature of great importance in diagnosis.

Treatment—All three previous conditions should have skiagrams taken to exclude organic lesions of the bones and joints. In the acute stage the patient should be relieved of weight-bearing. When the pain has come within the limit of tolerance he is allowed ambulation, (3 to 6 days). Active exercises should be started at once. Local massage and diathermy are of value if pain is protracted. Manipulation under general anæsthesia is of extreme value specially in sacro-iliac sprain where the subluxation is often a superadded feature. In late cases where there is persistent pain and it is proved to be due to uncomplicated sprain, manipulation followed by strenuous active exercises will effect a cure.

Summary

1. Definition, pathology, diagnosis and management of sprains in general have been discussed.

2. Commoner regional types of sprain have been considered in brief.

Acknowledgment

We take this opportunity to thank M/s. T. J. Smith & Nephew Ltd., Hull, U.K., for providing us with blocks of Figs. 5 to 10.

FIG. 4 A

FIG. 4 B

FIG. 4—Skiagram showing (A) normal lateral view and (B) strained positional anteroposterior view. In (B) obvious tilt at the talus to show the complete tear of anterior and middle bands of the lateral ligament of the ankle. This skiagram is extremely important to differentiate from sprain.

FIG. 5

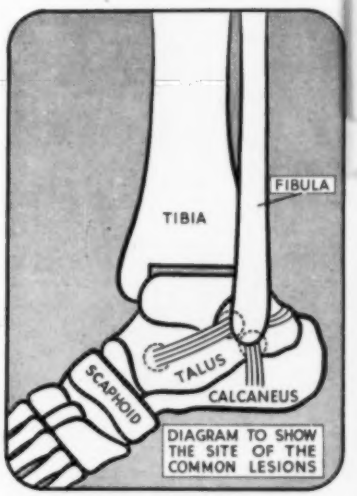

FIG. 6

FIG. 5—Showing the method of strapping of metacarpophalangeal and carpometacarpal joints of thumb by Elastoplast. (By courtesy of M/s. T. J. Smith & Nephew Ltd., Hull, U. K.).

FIG. 6—Showing the sites of common lesions—enclosed in dotted circles. (By courtesy of M/s. T. J. Smith & Nephew Ltd., Hull. U. K.).

FIG. 7

FIG. 8

FIGS. 7 & 8—An U-strap of extension Elastoplast is applied in relaxed position of the strained external ligament of ankle. Further turns of Elastoplast are applied in spica manner as shown in Fig. 8. (By courtesy of M/s. T. J. Smith & Nephew Ltd., Hull, U. K.).

FIG. 9

FIG. 10

FIGS. 9 & 10—An alternative method of relaxing the sprained external lateral ligament is by incorporating a wedge-shaped sorbo rubber pad on the outer side of the heel. This acts in the same way if the shoe was altered by raising the outer side of the sole (reversed Thomas' crooked & elongated heel). (By courtesy of Messrs. T. J. Smith & Nephew Ltd., Hull, U. K.).

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TREATMENT OF TYPHOID FEVER

R. SUBRAMANIAM, B.Sc., M.D., M.R.C.P. (London), Physician, Government General Hospital, Madras.

DRUG TREATMENT

"**COMPLICATIONS.** *Toxaemia*—During the last two years, I have tried a tin preparation called 'Aldestan' for these toxic cases. A bulk supply of this preparation was placed at my disposal by the kindness of Messrs. Hare Brothers. I have myself used it in a little over 30 cases and I have given this drug to the other physicians for about 15 cases. To begin with, I was using this drug only for the severely toxic cases, or cases with complications like haemorrhage and for late cases. The makers advocate that the tablets should be given for early cases to get the best results; but since I wanted to see the effect of this drug in proved cases and also in toxic cases, I could not start the treatment sufficiently early in most of my cases. My impression of Aldestan therapy in typhoid cases agrees with that of Dr. Patel. As noticed by him, I also found that the mortality rate was reduced, but the most favourable effect was seen with regard to toxaemia (except in the very few cases in which the patient was admitted very late in a severe degree of toxaemia and in a moribund condition). With Aldestan the toxaemia cleared. By the end of 48 or 72 hours the toxaemia was completely controlled, that is to say, the patients needed very little attention. But the temperature itself persisted. In none of my series of 45 cases was any complication like mental confusion or leukopenia observed. The duration of the fever itself is not altered. It looks as though with the administration of Aldestan we are treating a typhoid fever minus the toxaemia. Three of my cases had relapses. Though relapses occurred, toxaemia did not occur..... Treatment is discontinued forthwith if the patient responds paradoxically, *i.e.*, if the mental condition deteriorates. Fortunately, none of my series of cases showed any such deterioration. The action of Aldestan is aided by administering Potassium Iodide 10 grains per day. I add this Potassium Iodide with the Sharkliver-oil emulsion. The tablets have to be thoroughly crushed before they are taken in water. It is recommended by makers not to use Sulpha drugs orally; but by injection. I feel Aldestan has no bactericidal effect. Probably it neutralises the toxin after they are liberated by the organisms as otherwise it is not possible to explain the controlling of toxaemia without at the same time controlling temperature. The beneficial effect of Aldestan is noticed in haemorrhage cases also. In one of my cases, after a brisk haemorrhage the boy was in such a bad state that we had to give him blood transfusion and since rigidity of the abdomen developed, the abdomen was opened and no perforation was detected. The haemorrhage recurred and I started him on Aldestan at that stage. To my surprise the haemorrhage did not recur the next day, and toxaemia was completely controlled in another day and the boy left the hospital alive. Such a case without the tin preparation would certainly have proved fatal.

Haemorrhage and Perforation:—Both are dreaded complications but fortunately with the advent of tin preparations like Aldestan, haemorrhage may be controlled more satisfactorily."

Extracted from the 'Indian Physician', September, 1940, Vol. 5, No. 9, Pages 209.

REPORT OF 50 CASES OF TYPHOID FEVER TREATED WITH ALDESTAN, AN ORGANIC TIN COMPOUND

NATHOOBHAI D. PATEL, M.D. (Lond.), M.R.C.P. (Lond.), F.C.P.S. (Bomb.), Hon. Physician, K. E. M. Hospital and P. G. S. Hindu Hospital, Bombay.

"**RESULTS.** *Mortality:* In this series of 50 cases only 4 died (8 per cent) while in the control cases 12 died (24 per cent) (see Table.) The deaths were due to haemorrhage 2, perforation 1, and toxaemia 1; in the control group the deaths were due to haemorrhage 2, perforation 1; and toxaemia 9. Thus there was a marked reduction (by 66·6 per cent) in the mortality rate.

Toxaemia: Of the 50 cases, 46 cases showed a definite improvement in the general clinical condition. The toxaemia was much less and patients required little attention. The ward sisters and housemen all agreed that the aldestan-treated patients required very little special attention, even when the temperature showed no signs of settling. This improvement in the clinical condition became apparent in the first 5 days. Even the most severely toxic patients showed a remarkable change in the clinical condition after 3 to 5 days, *i.e.*, after 15 to 25 tablets were administered. The two cases in which the mental confusion increased, the deterioration occurred during this period, so it can be said that the patients who tolerate 15 to 25 tablets are not likely to have any cerebral symptoms later on. The two cases where there was progressive leucopenia, showed this abnormality also in the first 5 days. In these patients there was no deterioration in the toxic state, on the contrary the general clinical condition was the same, or a little better: leucopenia was merely a routine laboratory finding, which disappeared on stopping the drug."

ALDESTAN has also been tried with beneficial results by Dr. H. K. Roy, M.D. Campbell Hospital, Calcutta (Calcutta Medical Journal, July, '49) and by Dr. P. K.. Menon of Ottapalam, S. Malabar (Antiseptic, January, '51).

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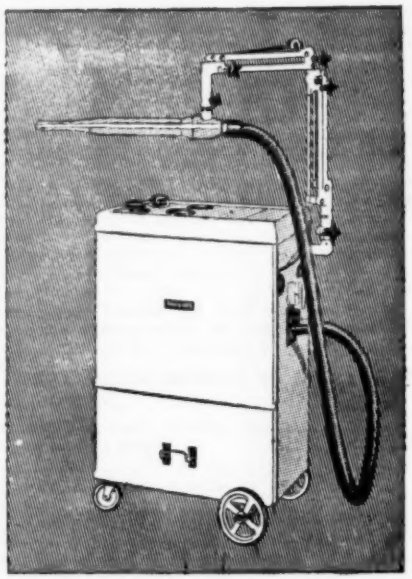

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SPECIAL ARTICLE

FAMILY PLANNING

AHILYA RAJADHYAKSHA, M.B.B.S., M.D.,
Amravati

In this small paper will be included a few interesting observations made by the author during the period of two and a half years of work in the Bombay Municipal Free Family Planning Clinics, conducted by Bombay Municipal Corporation, from April 1947 to November 1949.

This all important and very controversial topic has firmly established itself during the last few years, in spite of opposition on religious, moral and even economical grounds. Because of the necessity of tackling the grave food problem facing India at present, not to mention other problems such as housing and clothing scarcities, an all-out effort on different fronts has been sought to meet this national emergency. Economists and statisticians may disagree on the feasibility of the control of population through family planning as a national programme, but medical profession is acutely conscious of the interdependence of economic and health standard of the nation. That is the very reason why more and more health institutions and social bodies are clamouring for adoption of this method of planning the families by reliable and harmless contraceptive methods which might put a stop to the further deterioration of the standard of national health.

This deterioration of the general standard of health in a thickly populated urban area such as of Bombay city led its municipal corporators and other social bodies to press for a resolution on family planning. It was by a bare majority of votes that this resolution could get through the Bombay Municipal Corporation. The imparting of advice on family planning was sanctioned to needy mothers on medical grounds only. This was definitely a forward step in itself, as the two free family planning clinics which were started in April 1947, were the first of their kind in the whole of India. Later on, five more clinics were added. In order to give a further impetus to the work of family limitation, in 1949 the Family Planning Association was formed in Bombay under the able presidentship of Shrimati Dhanawanti Rama Rao. The Association was successful in securing the import licence for contraceptives which was refused by Ministry of Commerce, New Delhi, to many a private and public institutions.

Coming to the work done in the Bombay Municipal free family planning clinics, I may roughly divide it in three parts, *i.e.*, publicity and propaganda of the work, the actual instructions given, and the follow-up of the cases visiting the clinics. As regards the publicity work, a door-to-door propaganda is mainly done by a panel of health visitors who are attached to municipal maternity homes where some of these clinics are conducted, and also by health visitors attached to family planning clinics proper. The clinics in the maternity homes are held on post-natal days under a special lady doctor appointed for this work. The propaganda department of Bombay Municipality working under the Health Department is responsible for the publicity work through newspapers, leaflets, cinema shows, exhibitions, etc. The increasing number of women attending the clinics at present, is mainly due to home visits carried out by the health visitors. Every health visitor in the respective ward of the Bombay city, has to visit a delivered case within three months of her confinement. The particulars and the address of such women are obtained from the Birth Register clerk of the respective ward. These health visitors are provided with the printed leaflets giving the detailed information of the clinics as regards the place, days and time, etc. They are instructed to visit these women, not in the early busy hours of the morning when a confidential talk with them is difficult. The reaction with which these women take up this advice is variable, but the majority is happy to know about the clinics. Very few express their resentment at the encroachment on their personal side of life. Some women were frank enough to admit the failure of contraceptive methods which they had previously used. These women were requested to visit the clinic where they are assured that reliable and harmless contraceptives are prescribed by a trained lady-doctor. In connection with the publicity work regarding the scheme, the good and sincere work carried out by Bombay municipal health visitors must be acknowledged. It is through the constant and sustained effort of health visitors that a scheme on such a controversial project can meet with success.

Coming to the second part, *i.e.*, the actual instructions and advice given in the clinic, the success depends on the thorough routine observed in the clinic. The individual attention paid to each woman without any regard to time spent on her and the up-to-date follow-up of each case, scrutinizing the difficulties observed by the women and encouraging them for frequent re-visits, that is effectively minimising the percentage of failures. At the outset I may point out that more failures are seen in cases who visit the gynæcological and obstetric specialists who have no time for such tedious work. It is not enough that the contraceptives described should be of best and reliable type and of correct size. But it is the perfect way in which the woman who uses the contraceptives is trained and instructed. The standard contraceptive prescribed to a woman is vaginal diaphragm and a spermicidal jelly. It is seldom that specialists prescribe a wrong number of vaginal diaphragm. It is generally the inability of the woman to insert the diaphragm properly, due to inadequate instructions which require in certain cases an extra time and patience which the specialists generally find difficult to spare. As regards the general practitioner, very few male doctors prescribe contraceptives after proper vaginal examination and the size of the diaphragm is invariably smaller than that required, or the contraceptives generally are not the standard ones.

Most of the women who meet with failures are cases where cervical pessaries are advised without a preliminary vaginal examination.

In the family planning clinics where the author worked only women were advised, instructed and supplied with free contraceptives. The standard contraceptives prescribed were vaginal diaphragm, (Koromex) and a spermicidal jelly such as Koromex Jelly, Volpar Paste, or Orthogynol Jelly. Very few women who found this method rather complicated were prescribed other methods. A woman of average intelligence is seldom found not picking up this method if she was really keen on it. The class of women who attended this clinic, was mostly lower and upper middle-class and a few from labour class. No difficulty was encountered in instructing the labour class women of Bombay as the author presumes, that their standard of intelligence is better than that of their sisters in rural areas. The clinics were purposely started in middle class localities as previous experiments of starting such clinics in the labour area of Bombay by Bombay Bhagini Samaj under the guidance of Lady Jahangeer did not meet with success. The diaphragm jelly method, a very reliable method giving only 1 per cent of failures, is not a very complicated method as is generally understood. If the woman is keen on spacing the family and is not of "too-much trouble" type and if she is taken into confidence and given correct instructions, she always succeeds in picking up this method. Unless the patient is relaxed and encouraged if she fails to pick up the method quickly, no good result will follow. Any hurry on the part of the doctor or any discouraging remark as to the patient's ability to pick up this rather complicated method will result in failures.

The routine followed in the clinics is as follows: —As soon as the patient comes in for advice, a case-sheet is filled in taking the history of previous confinements in detail. Nulliparous women unless accompanied with any serious illness are not instructed. Later on, the woman is shown a small model of female pelvis and a rough anatomy and physiology of female genitals are explained to her without much details. By means of the model, the woman is shown how she should feel for her cervix, with her own fingers. This is an important step in diaphragm-jelly method. The patient is demonstrated as regards the insertion of the pessary putting it downwards and backwards in the vagina so as to cover the cervix on all sides. A Koromex pessary No. 50 is specially kept for this demonstration. She is shown on the pelvis model how a mistake can be made if the pessary is just inserted upwards in the anterior fornix instead of downwards and backwards. The woman appreciates this mistake by seeing the pessary in anterior fornix of vagina keeping the cervix exposed. She is repeatedly told that if this mistake is done and if after inserting the pessary the cervix is not palpated through the rubber dome of the diaphragm, failures are bound to follow. A P.V. examination is made and the size of the pessary to be given is decided upon. The size is measured by the distance between the lower end of symphysis pubis and the furthest point in posterior fornix. Holland and Rantos Company have prepared a set of vaginal rings of different sizes from 50 mm. diameter to 105 mm. diameter each with a difference of 5 mm. diameter. The ring differs from the Koromex pessary only by the absence of rubber dome of the diaphragm. These rings can easily be boiled and kept in Dettol solution. It is not necessary to use the vaginal rings for finding out the correct size of the diaphragm to be prescribed. With little practice, one does not make mistakes. If one is not sure of the size, it is always safe to give the next size of pessary. To a novice, keeping the set of vaginal rings may be necessary to find out the correct size.

In connection with the size to be prescribed one should remember that it must be sufficiently big as to reach the vaginal walls comfortably and to cover the cervix completely all over; but, at the same time, it should not be big enough as to cause discomfort on walking or should not come at the anterior end of introitus and be a hindrance during coitus. The failures with the diaphragm-jelly methods may be because of incorrect sizes prescribed. Generally, they are smaller than necessary. No rule can be made out as regards the size to be prescribed. A P.V. examination in every case is absolutely necessary. A young girl of moderate size with one or two children but with a relaxed introitus and tendency to cystocele and rectocele may require a bigger size than a middle aged woman of good build, having four or five children, but with intact perineum. In general, without a tendency for prolapse, 75 Koromex can be prescribed for a woman with two or three children and 80 or 85 Koromex to one having children more than four. But no generalization can ever be made as regards the size to be prescribed. A relaxed introitus, multiparity and mobile retroversions are the factors which call for a bigger size of pessary. In mobile retroversion cases introduction of Hodge or Smith pessary after correcting the retroversion is generally not appreciated by the patients, as putting in two pessaries, one for retroversion and one for contraception, is really too complicated and against all æsthetic sense. In case of mobile retroversion if a small size diaphragm is prescribed, it generally has a tendency to slip in the anterior fornix where there is abundant space because of absence of the body of uterus in that fornix. This leaves the cervix uncovered. With a big size of pessary for the particular vagina, this mistake can be avoided. Holland and Rantos Company have manufactured special Matrisalus and Mensinga Koromex pessaries for prolapse and retroversion cases. But they are not available in India because of their prohibitive cost.

The most important step of instructing the woman then follows. She is asked to put the pessary in herself, in squatting position first feeling her own cervix and then putting in the pessary by squeezing the spring ring and keeping the rubber dome either up or down. The women used to find the dome-down method

easier. The dome-up method has a theoretical advantage, in that it forms a sort of ring of rubber round the cervix in addition to the rim of spring all round the vagina. A second P.V. examination is done with the pessary in, in order to detect mistakes. If the patient can put the pessary in correctly, she is given an instruction card where instructions regarding the use of this method are given. Briefly they are as follows:—1. To insert the pessary a few minutes before the intercourse. 2. To apply the given jelly liberally all over the pessary. 3. To remove the pessary after 8 hours. 4. To wash the nessary in cold water and to keep it dry after sponging it with clean cloth and to keep it immersed in any chalk powder. 5. To test the pessary for any holes by holding it against light. 6. No douche is necessary.

As regards the cost of these contraceptives, the Bombay Municipal Corporation imported them directly from Holland and Rantos Company for Rs. 2-8-0 per diaphragm and Rs. 1-8-0 per 3 ounce tube of jelly in 1947. At present the Koromex contraceptives are not available everywhere in India. In this connection it may be mentioned that the All-India Women's Association and the Family Planning Association, Bombay, will be in a postion to supply these contraceptives to social bodies and to individual medical practitioners at a very reasonable rate such as Rs. 4-8-0 per diaphragm and Rs. 2-8-0 per three ounces tube of jelly.

Regarding the follow-up of the cases which visited during April, 1947 to December, 1949, the following figures will be interesting:

Total no. of cases advised—250; Real failures without any cause—1 per cent; Failures due to irregular use—15 per cent.

Out of these 250 cases, 95 per cent were prescribed diaphragm and jelly method and 5 per cent other methods.

The women who were advised are grouped according to age, parity and income.

Age group ..	Below 25 yrs.	Between 25-30 years	Over 35 years
	43%	50%	7%
Parity group ..	Below 4 children	Between 4-8 children	Over 8 children
	50%	35%	15%
Income group	Below Rs. 100 p.m.	Between Rs. 100-250 p.m.	Over Rs. 250 p.m.
	40%	50%	10%

The common complaints of women seeking advice were debility, exhaustion, anæmia—the aftermaths of repeated pregnancies. Two cases had heart lesions with congestive cardiac failure already set in. Two had pulmonary tuberculosis. The abortion rate among these patients was 10 to 15 per cent of normal labour.

The after-effects of using diaphragm-jelly method for contraception for two and a half years as observed in these women were as follows:—

1. Most of the women improved in their health as they were spared from the oft-repeated process of pregnancy and lactation.

2. Menstrual irregularities—5 per cent of women complained of menstrual irregularities, most of them belonging to highly educated class and who were in dread of future pregnancies. This was due to psychological effect on ovaries, giving rise to irregular ovulation and menstruation. Once these women had complete faith in this method and were assured that the irregularities were due to fear-complex, the periods returned to normal rhythm.

3. Leucorrhœa—No case reported leucorrhœa.

4. Effects on sexual life:—(*i*) Women practising abstinence for a long time were free from its harmful effects, physical and mental too, as they could start their normal sexual life. (*ii*) Increase in sexual indulgence was not reported; on the contrary sexual life was planned and regulated, as this diaphragm jelly method required preparation and after care. (*iii*) Sexual satisfaction—Very few husbands complained against this method, except a few, whose wives were cases of cystocele, rectocele, etc. and where the pessary could come out of the introitus. Such husbands complained as to the incomplete sexual satisfaction they derived from this method in spite of their wives having no tendency to prolapse. These women were taken into confidence and were asked to use contraceptives as before and to deny about their use. These husbands had no more trouble then, as the psychological factor was corrected. As regards the women, many women do not know the existence of such a thing as "reaching an orgasm" during sexual intercourse and such women do not experience any difficulty. The educated and the sexually conscious women who expect to experience orgasm, find sometimes difficult to reach it as in many cases the erotogenic centre which is situated in the cervix, cannot come in the picture as the cervix is covered by a rubber diaphragm.

5. As regards the effect on future child-bearing, no information on this point could be procured as the period during which these cases were observed was too short for it.

Coming to the other methods of contraception, these may be divided into two parts; one to be practised by women and the other by men exclusively. It is always advisible that a woman should use a contraceptive as she is the one who is always really keen on it. The other methods to be practised by women are cervical pessaries and jelly, sponge and foam powder, cotton-wool and oil, Grafenberg's rings, gold pin, etc. These are all inferior and unreliable methods. As regards the cervical pessary, sometimes it is even difficult for a physician to feel for a cervix which in cases of retroversion is very high and behind symphysis pubis. The cervical pessary in such cases is bound to give failures; besides there are no different sizes though all cervices are not of the same size and shape. The only case where cervical pessary can be of real value is the case where there is cystocele and rectocele without any descent of cervix. The sponge and foam powder method because of its chance of slipping anywhere during intercourse is not

a reliable method. Some cases have been reported where the foam powder has given rise to vaginitis and bleeding.

As regards Grafenberg's ring method, which is recommended by certain specialists in Bombay, it is said that it is not harmful as has been mentioned in text-books. The metal ring made of coil is introduced by a special introducer into the body of the uterus after preliminary dilatation of cervix. This small operation is done just after the menstrual period of the woman is over in order to avoid any interference with existing pregnancy. The ring causes a low grade endometritis and thus interferes with the embedding of ovum. The ring may remain in the uterus for six months when after removing it, it is reinserted after being sterilised. The dangers of irregular uterine bleedings and uterine carcinoma, it is said, are hypothetical. In some cases in spite of the ring, conception took place and the ring was seen in the skiagram of the uterus lying along the fœtus. The gold pin inverted 'T' shape, which is fixed to the external os of cervix is only mentioned in text-books.

Regarding the safe-period method which is very unsafe, women in general have wrong ideas about the ovulation time. Very few women know that ovulation takes place 14 days prior to the onset of the next menstrual period. As the spermatozoa are viable for 48 hours and the extruded ovum for the same period of time intercourse should be avoided two days ahead of ovulation time and two days after the ovulation takes place. As menstrual cycles are seldom regular and as conception is even reported as having taken place from a single coitus during menstruation, this method is very unreliable.

As regards the methods to be used by men, condom jelly method is the best. The condoms are of two varieties washable and non-washable, with teats and without teats. The washable condom with teat is the ideal one as the rubber is thick enough not to burst and the teat receives the voided semen intact. The only difficulty and the greatest of all is that it does not give complete sexual satisfaction to the husband. There is a definite technique in using rubber condoms and those who start using them late in their sexual life find it very difficult to reconcile. If one is used to condom-life from the beginning then alone this method gives good results. The cost of condom jelly method is not expensive. If a good quality washable condom is used such as Latex or Durex, it costs only 12 as. to a rupee and can be used several times after washing it with cold water. The condom should always be tested for any holes by blowing air through it or passing tap-water through it. A chemical spermicidal jelly may be applied all over the condom which acts both as a lubricant and a contraceptive agent. The coitus interruptus method which is largely practised before resorting to any scientific reliable method of contraception is harmful to both the partners. The nervous irritability of the husband and the chronic backaches and dyspareunia of the wife can generally be traced to this harmful method if one gets the detail.

In this paper on family limitation a word or two on methods of sterilization operations will not be out of place. The sterilization operation on man, "Steinach's ligature", is the simplest of its kind. This is done as an O.P.D. procedure and the man is able to attend to his work the same day. There are many wrong notions as regards the after-effects of this operation on the potency of an individual among the public. A nice and interesting article, "Sexual Effects of Vasectomy" has recently appeared in the Journal of American Medical Association (Sept. 3rd 1950 issue). A survey and follow-up of many cases of vasectomy are taken to show the harmless nature of the simple but effective operation.

As regards sterilization operation on women "puerperal sterilization" done on second or third day of confinement is the easiest one. The woman is hospitalized for 14 days and has to stay only for a few days more. This is a great advantage for our women who have always too much to do at home and who find very difficult to stay in hospital frequently. Later on, sterilization can be done per abdomen or per vaginum. Several cases of prolapse desiring to do family limitation were directed from municipal clinics to K. E. M. Hospital, Bombay, for repair of prolapse together with vaginal sterilization.

ACKNOWLEDGMENT

In the end, I must express my sincere thanks to Dr. Choksi, the Executive Health Officer, Bombay Municipal Corporation, for allowing me to quote statistical figures on cases who visited the Municipal Clinics during April, 1947 to December, 1949.

CASE NOTES

CONGENITAL ABSENCE OF THE FEMUR

K. S. BOSE, M.B.

From Orthopædic Department, Medical College Hospitals, Calcutta.

Congenital absence of the femur is a rare developmental anomaly. In a few cases reported in the literature, the general finding was rudimentary femur especially the upper half (head, neck, trochanters and upper end of femur) absent or deformed, and is replaced by cartilaginous tissue. But as Brailsford (1948) said, only in very rare occasion the femur may be completely absent—the upper ends of tibia and fibula articulating with acetabulum. In the case reported, the right femur was completely absent and it was thought worth reporting for its rarity.

CASE REPORT

A male baby (G.D.) 21 days old was brought by her parents to the Orthopædic Department, Medical College, Calcutta, for congenital shortening of the right lower extremity. The baby was the first issue and well developed. The parents were also of good health.

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WHEN IS IT INDICATED? Like streptomycin, as an adjunct to other measures in tuberculosis.

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WHAT IS THE DOSAGE? Daily doses of 2 grams of Dihydrostreptomycin Squibb may be given safely for periods equal to those in which streptomycin has been restricted to 1 gram a day, provided there is no renal dysfunction. Average dosage—1 to 2 grams daily in divided doses every 12 hours.

HOW SUPPLIED? 20 cc. vials containing the equivalent of 1 Gm. streptomycin base
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The mother gave no definite history of any illness during the pregnancy and the labour was normal. On examination the right thigh was found missing (Fig. 1 and 2, *vide* plate) with well developed right leg as if articulating directly with the hip. On palpation right femur was found absent in its entirety and arterial pulsation of dorsalis pedis and posterior tibial in right ankle was normal. There was a thick pad of soft tissue between the hip and upper end of the right leg. Active movements of flexion and extension, abduction and adduction and rotation of the leg were present.

No other abnormality was detected in any other part of the body.

Radiological findings—Skiagram taken on 28-7-50 showed that the whole of the femur was absent on the right side including the epiphysis. Tibia and fibula which were normal otherwise in comparison with the other side were found as if articulating with the hip bone, with fairly wide soft tissue gap. No other abnormality in the bony structure of the extremity was found except that the ossification centre of the upper epiphysis of the right tibia was rather small. The ossification centre of lower end of the femur was present on the other side (left) as usual (Fig. 3, *vide* plate).

A subsequent skiagram two months later revealed the same picture and no trace of any part of right femur could be detected.

Discussion

As has already been mentioned, complete absence of the femur is an extreme rarity. Katdare reported an adult case of bilateral congenital absence of femoral shaft but with articulation of superior and inferior epiphysis. Veitch (1929) has recorded 4 cases where the upper end of the femur was absent or deformed. These cases represent delay in ossification of the upper end of the femur. Fairbank (1937) has also recorded a case where on death of the child post-mortem examination recorded that the neck of the femur which was absent in x'ray was present and was only cartilaginous in structure.

This is probably one of the unique cases where there was total absence of the femur.

The child died in March 1951 after an attack of smallpox and unfortunately no post-mortem examination was held.

Acknowledgment

I am thankful to Dr. D. C. Chakravarty, Superintendent, Medical College Hospitals, for permission to publish this case and grateful to Dr. M. L. Barman, Surgeon-in-charge, Orthopædic Department, for his constant encouragement and help in spotting out interesting and rare cases.

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VOLVULUS OF THE STOMACH

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Volvulus of the stomach is a comparatively uncommon condition. Gabor (1940) cited 75 cases in total. Recently, several additional reports have appeared in the medical literature.

From a survey of the literature, volvulus of the stomach resulting in perforation of the stomach would appear to be extremely rare. Gharpure (1939) and Russels (1950) have reported one case each. Earlier Buchanan (1930) has mentioned perforation as one of the possible complications of volvulus of the stomach although none of the cases listed by him did end in this way. The case which is reported here, presented this unusual feature and is considered worthy of description.

Case Report

Patient H. C., a young male of 23, was admitted to Surgical Ward II of the Irwin Hospital, New Delhi on 18-3-1949 with the complaint of epigastric pain of 24 hours' duration. The pain had gradually increased in intensity and remained constant. Attacks of retching followed the onset of pain but no vomitus was brought up. After about four hours from onset of pain, he noticed distension in the upper abdomen, which gradually increased. Bowel action had previously been regular and normal motion had been passed earlier on the day of the onset of pain.

Previous History—Patient did not suffer from any attacks of abdominal pain before. There had been no urinary or other abnormality. His weight had been stationary.

Examination—On admission in Irwin Hospital, New Delhi, the patient was in a collapsed stage. His tongue was moist and lightly coated. Blood pressure was 90/70 mm. of Hg. The pulse rate was 120 per minute. The temperature was subnormal.

The abdomen was distended in the upper part, and was tympanitic all over, there being no evidence of free intra-abdominal fluid. The lower part of the abdomen, however, was rigid and tender. Bowel sounds were absent on auscultation. Rectal examination revealed some fullness in the pouch of Douglas. No fluid could be aspirated from the stomach by Ryle's tube.

Preoperative routine anti-shock measures were taken, and an exploratory laparotomy was done with a provisional diagnosis of perforated duodenal ulcer.

On opening the peritioneal cavity there was free escape of gas. An enormous rounded tumour which filled the whole upper abdomen was found to be stomach. Some turbid fluid containing undigested rice

and other food particles was seen in the lower part of the abdomen. On lifting the lower margin of the mass of stomach, a perforation into the stomach was detected. About 1½ pints of stomach contents were evacuated by suction through this opening. At this stage it was found that the pyloric antrum was lying beneath the left dome of the diaphragm. On releasing the volvulus, the cardiac end of the stomach was found to be congested. The perforation in the stomach was situated on the anterior surface near the middle of the lesser curvature. It was 1"×¾". This was closed and overstitched. The peritoneal cavity was cleared of the fluid that had leaked and was drained through a separate stab incision in the suprapubic region. Sterilized sulphonamide powder was dusted into the peritoneal sac, and it was closed. The wound was closed in layers.

The patient could not overcome the shock and expired after 12 hours of the operation.

Discussion

As the subject of volvolus of the stomach has been extensively discussed by several authors, it is not intended to review the subject in detail.

The typical features of the condition were not observed in this case until late. Constant retching without any vomitus and inability to aspirate any stomach contents through the Ryle's tube, considered along with the upper abdominal distension and epigastric pain, should have led to the conclusion of volvulus of the stomach which was missed here due to superimposed paralytic ileus resulting from leakage. When the stomach is intact there is usually little evidence of peritoneal irritation with tenderness, hyperæsthesia and muscular guarding.

It is maintained that the perforation was probably due to a combination of factors. Necrosis of the wall of the stomach may have occurred due to loss of blood supply due to rotation of the stomach round the cœliac artery. Overstretching due to accumulating fluid probably helped to perforate the weak spot produced by ischæmic necrosis.

Summary

1. One case of volvulus of the stomach is reported.

2. It is thought that this may be the third case of perforation in association with gastric volvulus.

3. The ætiology of perforation is conjectured.

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XXVII ALL-INDIA MEDICAL CONFERENCE, AHMEDABAD

The 28th All-India Medical Conference will be held *on the 17th, 18th and 19th February, 1952,* at *Ahmedabad,* on the occasion of the Golden Jubilee Celebrations of the Ahmedabad Medical Society.

Attempts are also being made by the Indian Medical Association to invite the next *Commonwealth Medical Conference* to be held at Ahmedabad, in India, at the time of the Conference.

Arrangements are being made to make the *Scientific Section* interesting and instructive. The scientific sessions will include Symposia on the subjects of Burns, Diabetes and Family Planning. Contributors of scientific papers have to send the *title and synopsis* of their papers to the Conference Secretary at the Prarthana Samaj Hall, Raikhad, Ahmedabad, by the *15th October, 1951.*

A magnificent *Exhibition* of medical products and medical and health appliances will be held. Besides these, special stress is being laid on the *Social* and *Entertainment* aspects of the Conference. Amongst excursions, a trip will be arranged to the famous "Sabarmati Asram" from where Mahatma Gandhi preached his ideals of truth and non-violence.

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CALCUTTA, OCTOBER, 1951

MEDICAL EDUCATION

After the publication of the recommendations of the Goodenough Committee[1] and the report of the medical curriculum committee of the British Medical Association[2] in U.K. and the report of the Bhore Committee[3] in India it has been widely recognised that reforms of the medical curriculum and of the methods of teaching and examination are urgent needs, for, not only better and more useful practitioners, but an efficiently trained and inspired body of research workers, must derive their impetus from the education they receive. In medicine the ultimate objective of teaching is "the promotion of health, the relief of suffering and the elimination of disease in man". The present curriculum is conducive to memorizing of a mass of detail without a thorough appreciation of the underlying general principles. There is a feeling amongst the medical students that the curriculum is subdivided into separate subjects and each subject is an obstacle which has to be surmounted before the next is reached. But medical knowledge cuts across departments and each part has an important bearing on the part which follows. The students should be trained to feel that no part is left behind when another is started. There must be coherence, continuity and interdependence of all parts of the curriculum. The student must have sufficient time to think for himself or to analyse and synthesize, to integrate and to relate his knowledge.

Selection of Students

The selection of the proper type of medical students for admission in medical colleges is an important task. The number of applicants now far exceeds the seats available for them in the medical colleges, as Medicine still offers more stable material prospects and a better social status than do most other professions. Whenever a State is in need of an increase in the number of doctors, new medical colleges of the standard laid down by the Medical Council of India would have to be created in the State. While appointing selection committees, the authorities concerned must see that the members of such committees are chosen for their suitability for this task, irrespective of political or other considerations. As members must be keen and interested in the work of selection, the large majority of members, if not all, should be teachers of medical institutions.

The field of recruitment of medical students must not be restricted by social, economic, regional or other barriers. Provision of an increasing number of scholarships and stipends should be made to remove economic difficulties of desirable candidates. To combat the extreme shortage of qualified doctors in rural areas, recipients of stipends from the State may be asked to enter into a bond with the State Government for rendering their services to the State, in rural areas, for at least a period of 5 years, if necessary.

Whatever the test that may be adopted, merit must be the chief criterion of selection. A candidate's academic record and intelligence, personal character and his interest in a medical career should be the main considerations. If there is a very large number of candidates, a preliminary sifting should be made by a written competitive examination. Intelligence tests, conducted by psychologists specially trained in testing ability and aptitude, for preliminary sifting, have not yet been universally accepted. The marking of this preliminary test along with the result of his university examinations and school record would be a fair guide to the merit of the candidate. Necessary arrangements should be made so that our future schools and colleges tell us in their reports of the student's selflessness, keenness, co-operative spirit, sympathy, tact and understanding, his capacity for leadership and his reactions in a crisis. These would be the criteria for judging his personality. Achievement in games, participation in the activity of school and college societies, hobbies and interests are helpful in assessing a student's character. Interests in scientific subjects and hobbies and an aptitude in scientific method may lead to a fair presumption of interest in medicine.

It must not be overlooked that significant mistakes in the judgment of men and their character and personality may be made, as in love, at "first sight". It is obvious that some candidates may not be at their best in an interview and most of them require adequate time to settle down. At the interview, questions should be asked without any bias and questions should be so chosen as not to put candidates of small means or from the countryside to any inconvenience.

Even after admission, the suitability of the medical student to continue his course should be reviewed after the first year of study. There should be ruthless weeding out of those students who are found to be unsuitable. The rejects are expected to be few in number, if the preliminary selection is carefully carried out. The committee responsible for admission of students should also be given an opportunity to undertake a critical review of the candidates, at the end of the second year of study and later, so that the members of the committee can compare their earlier assessment of the candidates with their performance. Such experiments are likely to lead to adoption of better methods of selection.

Every medical college should provide a properly organised students' health service and it should be made compulsory for all medical students to have a medical examination before admission into the medical college

[1] Report of the Inter-Departmental, Committee on Medical Schools—H. M. Stationery Office, London, 1944.
[2] The Training of a Doctor—Butterworth's Medical Publications, London, 1948.
[3] Report of the Health Survey and Development Committee—Manager of Publications, Government of India, Delhi, 1946.

and subsequently at regular intervals and at such times as necessary. The provision by medical colleges of nourishing meals at reasonable prices would do much to improve the health of students. The value of residential college life for medical students cannot be overestimated. Residential accommodation, which is at present scanty in most colleges, should be extended as soon as practicable.

Pre-Clinical Period

In the "pre-clinical period", the student must be provided with the basic scientific principles and data on which the study of medicine should be founded. He must be taught to appreciate that his subsequent understanding of disease will actually depend on the knowledge he acquires in this period. The methods of instruction in the pre-clinical sciences should be so interesting, illustrative and co-ordinated that the students would not be led to regard these subjects as obstacles which have to be surmounted before "real" medicine is begun. For this purpose, there must also be no lack of co-operation between pre-clinical and clinical teachers.

The chief subjects of study at this period are anatomy including embryology and physiology including experimental physiology and biochemistry. The large majority of experts are of the opinion that elementary pharmacology and elementary psychology should also be taught in this period. Some experts believe that general pathology and microbiology as well as clinical methods should also be taught during this period. But in the opinion of the majority of experts, these subjects should be learnt by the student during the "introductory course" at the beginning of the clinical period.

With regard to anatomy, a sound general knowledge of the anatomy of the living subject, with special attention to functional aspects and relation of structures to the future requirements in clinical subjects is all that is required. The details required for special surgical or other purposes should be stressed during the clinical period. The same argument applies to embryology in which a sound knowledge of the fundamentals and a general outline are only essential at this stage. It is gratifying to note, however, that an increased attention is now, being paid, to teaching of anatomy of the nervous system on which the student's concept of neurology is based.

The teaching of physiology should take a greater part of the time in the pre-clinical period, but lesser emphasis should be laid on animal experimentation, and only the fundamental principles of endocrinology should be taught. Biochemistry should be taught in co-relation to physiology preferably by a chemist with a medical qualification who is expected to understand the relationship between chemistry, physiology and medicine. Organic chemistry should be taught just to help the student to understand the biochemical processes of health and disease.

For proper teaching, a careful co-ordination of syllabuses and a close co-operation between the pre-clinical teachers particularly in the subjects of anatomy and physiology is essential. As a general rule, the student should be taught first the general structure, both naked eye and microscopic, of the organ or system under discussion and then its function. Thereafter he should be asked to undertake the detailed anatomical dissection of the portion concerned. If anatomical and physiological knowledge is presented to the student in this order, he is expected to get a clearer grasp of these subjects.

The re-orientation of pre-clinical teaching will require replacement of existing text-books by new manuals. As dissections have to be undertaken only during the winter sessions in India, the period of pre-clinical teaching cannot be reduced from two years to eighteen months. It is, however, essential that an adequate number of teachers should be appointed and the salary and conditions offered to them should be sufficient to attract well-qualified men. It may be mentioned in this connection that the Bhore Committee recommended that the proportion of teachers to students in the subjects of anatomy and physiology must not be less than 1 to 30 in the case of permanent whole-time senior teachers and 1 to 10 in the case of demonstrators. The Committee also recommended that besides these permanent teachers, there should be part-time teachers, two for each of the departments of anatomy and physiology. "These part-time teachers should be junior specialists attached to the surgical and medical units of the teaching hospital and they should give part of their time to teaching anatomy and physiology in their relation to the clinical subjects."

Introductory Clinical Course

The introductory clinical course should be so conceived as to lead the student from his study of the normal man to the study of deviations from the normal and to the general principles underlying the practice of medicine. The course should include: (*i*) instructions in the fundamentals of general pathology; (*ii*) demonstrations of principles underlying diagnosis and prognosis and an introduction to the use of accessory aids to diagnosis; (*iii*) an introduction to social medicine and (*iv*) instructions in the methods of history-taking and recording. The student should be brought into contact with selected cases for an accurate recognition of the physical signs of disease, but should not be assigned to individual patients as clinical clerk at this stage. References to detailed treatment should also not be stressed. A panel of suitable patients and a suitable collection of pathological specimens for this part of the course, should be maintained.

Such a course demands from those in charge of it an aggregate of time that could not be asked from men largely engaged in consulting practice. The organization and general direction of the course should be the special responsibility of the (whole-time) professors of general medicine, surgery and pathology. For the associated demonstrations to small groups of students, it will be necessary to have an adequate number of whole-time assistants (or registrars). The introduc-

tory course should consist of planned scientific instruction, should be made sufficiently interesting and should extend over a period of at least three months.

Clinical Course

The number and variety of patients in the wards and out-patient departments should be adequate. The attainment of adequacy in this respect should be one of the main considerations determining the question of the creation of new medical colleges. Every medical college in India admitting 100 students a year should have at least 500 hospital beds, to start with. In the course of the next ten years, the number of hospital beds should be raised to 1,000, in each such teaching institution. The clinical course of three years cannot be shortened, as students should have a holiday of eight weeks during each clinical year and at least two clear months "before the final examination should be left free to the students for personal revision unhampered by official classes".

The clinical curriculum should be remoulded with a view to provide the student with a thorough basic training for modern medical practice. A sound knowledge of the causation, diagnosis and treatment of common ailments is essential. Such knowledge of special pathology, medicine and surgery as will enable him to recognise the existence of emergencies and other conditions for which special diagnostic and therapeutic measures are required is also necessary. "All detailed knowledge of the specialities, the technique of major surgery and all but the common laboratory investigations should be excluded." Joint teaching by means of clinical-pathological conferences at a later stage of the clinical period is of immense value.

"The Hippocratic physicians studied the 'whole' man, his appearance, his habits, his work, his illness, and all that comprised his environment." The object of undergraduate teaching is not to train general practitioners only, but to provide the student with a foundation for his later career in any branch of medical practice. For this purpose, every teaching hospital should have "a general admission ward through which, with few exceptions, cases admitted to hospital should pass, instead of there being separate admission wards for medicine, surgery and the specialities". The students will examine patients of such a ward with an unbiased mind. Provision of "a minor ailments clinic" attached to the casualty department is also a necessity. "Everything possible should be done to encourage the student to look upon the patient as a person who has come to the hospital especially to the out-patient department, as he would go to a general practitioner, that is, an ill person whose sufferings must be investigated and treated whatever their nature".

One educationist opined, "The student and the teacher, not the curriculum, are the crucial elements in the educational programme." "Whatever the cost, there is a need for more teachers, adequately remunerated, to provide an efficient tutorial system." It is now generally accepted that "the staff of every medical college should include a whole-time professor in each of the departments of general medicine, general surgery, and obstetrics and gynæcology. This goal will have to be reached by stages as suitable men and women become available". Interim arrangements by the creation of whole-time appointments in junior and intermediate grades are suggested. All whole-time appointments should be on a permanent and pensionable basis. "But the bulk of teaching will and should in the future devolve on those who are in active practice and whose teaching is part-time. The rate of payment and the conditions of such teaching should be sufficiently attractive to prevent its being subordinated in importance to the calls of practice." The Goodenough Committee also recommends that "pension arrangements should, if possible, be made for part-time teachers when the service given is of reasonable amount and duration".

The late professor Noah Morris said "If I were summing up the qualities of a good teacher in medicine, I would enumerate Human Sympathy, Moral and Intellectual Integrity, Enthusiasm, and Ability to Talk, in addition, of course, to knowledge of his subject." It must be borne in mind that many of our professors and lecturers and outstanding research workers are unfitted to teach. It is therefore, not desirable to recruit persons as teachers merely because of their academic attainments or fame in practice if they do not possess adequate teaching experience and general qualifications enumerated above.

In order that much more personal attention may be given to the students in clinical work, the Bhore Committee recommended that the proportion preferably of junior teachers to students should be 1 : 8 and of senior teachers 1:10. Though such a proportion may not be attained in every medical college, in the near future, attempts must be made to see that any ward or clinic should not have more than twentyfive students, at a time.

There is now, an enthusiastic support for the proposal for compulsory pre-registration resident house appointments. Most experts are of opinion that the period of internship should cover twelve months. For the success of the scheme, attempts should be made to provide the holders of pre-registration house appointments with at least free board and lodging, wherever necessary. The most satisfactory results will be obtained if the training is chiefly confined to the departments of general medicine and surgery and provision be made for gaining further experience in special departments.

In this editorial, observations have been made only on the fundamentals of the changes necessary in the curriculum. The minimum standards of the detailed curriculum have to be worked out by the Medical Council of India, in consultation with the Universities and the medical profession. A wide margin should however be allowed to individual medical colleges and universities to develop their own potentialities and even to experiment. The details of the course and methods of training should be organized by the professors in

consultation with all the other teachers of the institution. Informal meetings of all professors and clinical teachers should be held periodically and at these meetings the views obtained from the students regarding existing deficiencies should also be discussed. In this connection, the need for periodic evaluations and revision of the medical curriculum in the light of experience must not be forgotten. Changes must be based on educational experiments rather than on surmise and presumption.

SPLENOMEGALY AND HYPERSPLENISM

The important functions of the normal spleen are destruction of the formed elements of the blood, storage of these elements, production of lymphocytes, and phagocytosis by its reticulo-endothelial cells of foreign particulate matter, *e.g.*, bacteria and granular debris. It has also been suggested (Krumbhaar[1] and Dameshek[2]) that the spleen also possesses an endocrine function, which regulates the activity of the bone marrow. The level of cells in the blood is the result of an equilibrium between the productive capacity of the marrow and the destructive capacity of the spleen. The normal spleen only destroys old and effete cells after they have finished their normal span of life, which is about 120 days in the case of the red cells, and a few hours to a few days in the case of white blood cells. Phagocytosis plays a part in the removal of both red and white blood corpuscles. Moreover, the lysis of erythrocytes in the spleen is helped by the activity of agents like lysolecithin. The slow process of circulation of blood through the spleen, the detention of cells in the sinuses, with deplasmatization and the slow journey of the cells from the arterial to the venous side help both processes. The fact that splenectomy is not followed by any ill effects and that if is compatible with perfect health does not mean that it has no important functions. The constituent structures of the spleen—reticulo-endothelial tissue, and lymphoid follicles—found elsewhere in the body readily take over its functions. The ill effects of the lack of storage capacity have not been assessed but are apparently not serious.

In many blood diseases and in many diseases in which the spleen is enlarged marked structural alterations take place in the spleen. The majority of such cases are accompanied by dilatation of sinuses and reticulo-endothelial hyperplasia, and are often followed by increasing fibrosis of the trabeculæ and capsule with gradual loss of muscle tissue in both these structures. What influence such structural alterations may have on the functions of the spleen has not been fully explored. Suspicion has been gradually gaining ground that the normal functions of the spleen may be exaggerated under these circumstances giving rise to hypersplenism. The existence of such a state and its designation were suggested as early as 1914 by John H. King.[3] Excessive destruction of red and white cells and of the thrombocytes either singly or in combination would result from such a state. Doan,[4, 5] favours a "sequestration phagocytosis" theory. The spleen destroys excessive numbers of these cells; the process being helped by stasis, and reticulo-endothelial hyperactivity. The level of these cells in the blood will not fall so long as the bone marrow compensates for the excessive destruction. Compensation may however fail and, anæmia, granulopenia, and thrombocytopenia may follow. It is also now generally accepted that such a state may occur due to primary perversion of the function of the spleen. Primary splenic neutropenia and panhæmocytopenia are examples, of such states. Many of these cases have responded to splenectomy. Primary hypersplenism is a rare condition.

When however structural alterations occur in the spleen due to diseases in which its enlargement is a predominant feature and specially when such alterations persist after the primary disease has become chronic or has been cured, the stage is set for gross alteration in the functions of the spleen. In such cases, apart from dilated sinuses and reticulo-endothelial hyperplasia, the muscular fibres of the capsule and trabeculæ are replaced by fibrous tissue. The rhythmical contraction of the involuntary muscle fibres with its emptying effects on the sinuses and pulp is lost. Increasing stasis and congestion follow. The blood corpuscles remain for a much longer time in the sinuses in a deplasmatised state favouring hæmolysis. Scheff and Awny[6] found evidence of increased lecithinase activity in 10 cases of pathological spleens (9 of which were obtained at operation) exhibiting clinical features of hypersplenism. The longer stay of the blood in the spleen also favours phagocytosis. Van Haam and Awny[7] examined the spleens from 102 cases with clinical symptoms of hypersplenism and found reticulo-endothelial hyperplasia proportional to the clinical severity.

The clinical recognition of the hypersplenic state is by a process of deduction. The following criteria have been suggested by Kracke and Riser:[8]

(1) An enlarged spleen (except in certain cases of essential thrombocytopenic purpura).

(2) Depleted cell values in the blood, including anæmia, neutropenia, and thrombocytopenia either singly or in combination.

(3) Bone marrow hyperplasia with regard to the cells which are deficient in the blood.

(4) Demonstration of excessive sequestration of one or more *varieties* of the cells of the blood by the

[1] *Physiol. Rev.*, **6**:160, 1926.
[2] The Spleen and Hypersplenism—Grune and Straton, New York, 1947.
[3] *Arch. Int. Med.*, **14**:145, 1914.
[4] *Blood*, **1**:10, 1946.
[5] *Bull. N.Y. Acad. Med.*, **25**:625, 1949 (2nd series).
[6] *Am. J. Clin. Path.*, **19**:615, 1949.
[7] *Am. J. Clin. Path.*, **18**:313, 1948.
[8] *J. A. M. A.*, **141**:1132, 1949.

spleen. This is done by the adrenaline test. An injection of adrenaline brings about a contraction of the spleen, releases the trapped cells into the circulation and causes a concurrent rise of their value in the blood.

When all these criteria are fulfilled a state of hypersplenism can be assumed to exist. The adrenaline test is not likely to be positive when the musculature of the spleen is replaced by fibrous tissue.

It must be however mentioned that some authors[2] lay stress on the inhibitory action on the bone marrow by a hormone produced by the spleen to explain some of the features of hypersplenism and its relief by splenectomy.

The relevance and importance of this subject to India is felt by all physicians who so often see cases of enlarged spleens with chronic ill health when the original disease causing the enlargement may even have subsided.

Four investigations into autopsy records showing the frequency of splenomegaly found at post mortem and of those due to the effects of chronic malaria or kala-azar are cited below:

	Total autopsies	*Total splenomegalies*	*Due to chronic Malaria K.A. or of unknown ætiology*
Calcutta (1920-29)	977	525 (54%)	124 (De, 1932)[9]
Bombay (1927-31) Gharpure	700	280 (40%)	45 (quoted by Connor)[10]
Rangoon (1927-31)	1631	470 (28·8%)	32 (quoted by Connor)[10]
Madras (1899-1933)	5034	1101 (21·9%)	324 (Menon, 1934)[11]

It will be seen from the table that malaria, kala-azar and splenomegalies of uncertain origin constituted 21·7 per cent of all splenomegalies at Calcutta, 29·4 per cent at Madras, 16·1 per cent at Bombay and 6·8 per cent at Rangoon.

Many authors in this country have remarked upon the possible influence of large spleens in the causation of anæmia and ill health by a process of blood destruction. Hughes and Srivastava[12] after a detailed hæmatological study of 31 cases with history of previous attacks of fever and with residual large spleens concluded that the depleted blood condition was due to destruction of the erythrocytes by the reticulo-endothelial cells of the spleen. De[13] after histopathological studies of a large number of spleens noted the excessive phagocytosis by the erythromacrophages in states of splenomegaly, about the ætiology of which he was not certain. Napier[14] put forward a similar hypothesis of cell destruction by the spleen in cases of splenomegaly as a sequela of kala-azar. Later, he was of opinion that the reticuloendothelial cells in a state of hyperplasia in chronic malaria as well, destroyed cellular elements of the blood indiscriminately, specially when their make up was slightly defective due to nutritional factors.

Sen Gupta[15] in a clinical study of 50 cases of splenomegaly in 1938 expressed a similar opinion. In a communication in the present issue of the Journal, Sen Gupta and Bhattacharya[16] have produced evidence of excessive destruction of red and white cells in the spleen, in cases of chronic and advanced kala-azar.

Evidence is therefore not lacking both from clinical cases and autopsy records that this particular variety of secondary hypersplenism is a definite problem in India. Splenic enlargement of considerable dimensions may result from chronic malaria, chronic drug-resistant and imperfectly treated cases of kala-azar, and in a group of splenomegalies, the ætiology of which cannot be definitely stated.

Unfortunately however, although the possibilities of secondary hypersplenism are so widespread, no systematic hæmatological, clinical, and follow-up studies have been undertaken to assess the amount of disability owing to continued ill health, liability to intercurrent infections, hepatic cirrhosis or impairment of working capacity and reduced life-expectancy. There are also no available records in our country to indicate whether splenectomy is beneficial in these cases and the degree of improvement that may be expected following this operation. In the absence of these data it is not always possible to offer the best advice to patients who have a markedly enlarged spleen as a legacy to chronic protozoal infections and in splenomegalies of uncertain origin.

NON-SPECIFIC URETHRITIS

Urethritis due to causes other than gonococci is not unknown, but pitfalls in diagnosis have been repeated by writers from time to time; Legrain (1888), Janet (1893), Luys (1917), Arns (1912) and Buck (1912) etc.

Non specific (non-gonococcal) urethritis may start *ab initio* just as it may be an aftermath of laboratory tested and cured specific urethritis. Further understanding of the condition has naturally helped in the evolution of rational therapy and to our knowledge of this rather peculiar condition. It is here that

[9] *Indian J. M. Research*, **19**:1029, 1932.
[10] *Indian M. Gaz.*, **68**:35, 1933.
[11] *Indian J. M. Research*, **21**:695, 1934.
[12] *Indian J. M. Research*, **19**:565, 1931.
[13] Rep. of S.A.B.I.R.F.A., p. 92, Secy. Gov. Body of I.R.F.A. New Delhi, 1938.
[14] *Indian M. Gaz.*, **74**:1, 1939.
[15] *Indian M. Gaz.*, **78**:255, 1943.
[16] *J. Indian M. A.*, **21**:1, 1951.

scrupulous laboratory technique is so important and it is surely a field where the best interest of the patient is served by close collaboration of a venereologist and a pathologist.

VOLUNTARY OFFER OF DEAD BODY

When at the last All-India Medical Conference at Sholapur a resolution was passed calling upon the members of the medical profession to donate their dead bodies for post-mortem investigation, whenever needed, to set an example for the laity to follow, we hardly expected that the ready response would come from a noble son of our country in the person of Sri Mathuradas Trikamji, an ex-Mayor of Bombay, who enjoined in a personal appeal to Hon'ble Dr. M. D. Gilder, Health Minister of Bombay State, to arrange for the post-mortem examination of his body preferably at the G. S. Medical College. Sri Mathuradas, a distinguished graduate from Bombay was noted for his devotion to social service amongst the poor and was held in very high esteem by the city fathers of Bombay and was elected a Mayor. He practically devoted his whole time and utilised all his energies to the service of the rate payers and as a result, his health was shattered. He patiently suffered from the pangs of the fell disease, tuberculosis, and displayed such an amount of self-control and determination to fight with the disease that he lived for about ten years while struggling on. Out of his esteem and love for the votaries of the medical science, Sri Trikamji dedicated his body for scientific investigation before the students of medicine to enable them to find out the changes in his body tissues which helped him to fight out the ravages of the disease all these years.

Sri Trikamji was a nephew of Mahatma Gandhi and possibly imbibed the spirit of service from him and this ideal prompted him to be of further service to the medical science even after death. Hon'ble Dr. Jivraj Mehta, one of our ex-Presidents and a Minister of Bombay State, in a press note has expressed the gratitude of the medical profession to the family of Sri Trikamji for honouring his last wishes and we take this opportunity to endorse the same on behalf of the entire medical profession of this country.

Our country is noted for sacrifice since time immemorial but the ideal set by Sri Trikamji is certainly very commendable and worthy of emulation by others for the sake of advancement of scientific knowledge.

OUR NEW YEAR

It may be recalled that the first official organ of the Indian Medical Association was named "Indian Medical World" and 18 issues in 2 volumes were published by that name between March, 1930 and August, 1931. The Association organ was rechristened "Journal of the Indian Medical Association" on and from the September 1931 issue. It is interesting to note that 12 issues comprised a volume until the fourth volume with the present name consisted of 13 and thus it was that the journal year was made to coincide with the official year of the Association commencing October. In fact, there are twentytwo published volumes of the official organ to the credit of the Association although the present issue shows that we are just stepping into the twentyfirst year. We have thus steered through another year in the span of our life to serve the medical profession as the official organ of the Indian Medical Association.

We take this opportunity to acknowledge with gratefulness the ready co-operation and guidance afforded to us by the members of the local and All-India Advisory Committees, our referees and contributors from different and distant parts of the country. All these jointly made our labours to run the Journal much lighter.

We are very sorry to record that because of the limited space at our disposal we could not do full and timely justice to the learned contributions received during the year under review.

We have from this issue changed the typographic arrangements to a certain extent, to find more space for scientific reading matters and we are seriously contemplating to convert the Journal into a fortnightly publication, instead of a monthly one, in the near future. We crave the indulgence of our well-wishers in the scientific world who have been kind enough to contribute articles to our Journal.

Encouraged by the continued help and guidance we have received, so far, we have decided, with full concurrence of the Working Committee of our Association, to publish a new monthly health journal "Your Health" from January, 1952. It will deal with the general rules of healthy living, the various aspects of preventive and social medicine, questions about diet, nutrition and antenatal care. Health education being in its infancy in India, it is hoped that this health journal of the Indian Medical Association will help people to gain enormous and useful information pertaining to health. We must acknowledge in this connection the lead given by the British and American Medical Associations for the excellent production of their health periodicals.

In this new venture of ours we solicit the goodwill, advice and whole-hearted co-operation of the members of the profession far and near. From our experience of support of the past we are confident the same will be readily available to us to serve our people at large in the field of regeneration of the health of our people who must have a sounder basis to build up the body fabric of the nation. Medical profession, we hope, in this set up will come forward to play their part as they have always done.

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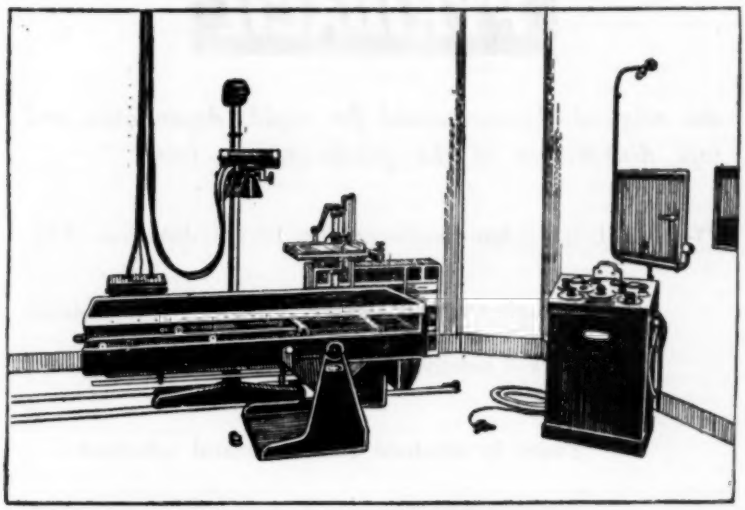

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CURRENT MEDICAL LITERATURE

Terramycin

Linsell and Fletcher (*Brit. M. J.*, **2**:1190,, 1950) give in the following lines the summary of their observations on the laboratory and clinical experience with terramycin hydrochloride:

Our clinical experience has shown terramycin to be an antibiotic of low toxicity, which is readily absorbed from the gut and which rises to satisfactory levels in serum, urine, faeces, and probably in most serous cavities. It is unfortunate that the blood-brain barrier is penetrated only poorly, but, as experience with other antibiotics has shown, this is not necessarily a bar to the efficient treatment of meningeal infections.

Our limited clinical results bear out expectations founded on the *in vitro* activity of the drug.

We would draw particular attention to the high levels of the drug in the urine and to our observations that the urinary pH seems to be immaterial in procuring successful results. The table of bacterial sensitivities shows that all the common urinary pathogens, with the exception of *Pr. vulgaris* and some strains of *Ps. pyocyanea*, are sensitive to concentrations many times less than those obtained therapeutically. It appears likely that with high dosage, leading to urinary levels of 300-400 g./ml., practically all cases infected with *Ps. pyocyanea* will be amenable to therapy. Further, the fact that a number of strains of *Pr. vulgaris* are sensitive to chloramphenicol and streptomycin means that we now have efficient agents for the treatment of nearly all urinary bacterial infections.

In addition to our findings with the treatment of *Ps. pyocyanea* infections of the urinary tract, our preliminary data with regard to superficial infections with this organism show that terramycin offers real promise in controlling pyocyanea infections by local or systemic administration.

The striking changes in bacterial flora produced by terramycin and the high residual concentrations in the faeces will still further increase the scope and safety of gastrointestinal surgery and enhance the medical management of intestinal infections.

We have noted in several cases that terramycin has produced clearing of abnormal nasal flora and considerable change in the bacterial content of sputum in cases of bronchiectasis; these findings indicate additional therapeutic uses.

We have not yet observed any striking difference in antibacterial activity between terramycin and aureomycin, with the one exception of *Ps. pyocyanea*, against which terramycin is more effective. Terramycin is also much more stable in solution than aureomycin, which is particularly advantageous in laboratory work.

Proteins and the Clinician

It is hardly surprising that the progress of protein biochemistry should immensely influence the progress of medicine. Not only are many hormones and many bacterial toxins protein in nature, but the protoplasm of every cell of every tissue is basically an assemblage of protein molecules of various kinds. Myosin, the fundamental contractile stuff of muscle, keratin of skin and nails and hair, all the enzymes of metabolism, haemoblogin and the albumin and globulin of blood—all are protein, all are the study of the protein chemist in his back room, and on his results depend the preparation of toxoids the understanding of immunity, the treatment of burns, anaemia, oedema, and shock, and of metabolic disorders such as diabetes.

In *Brit. M. J.*, **2**:1237, 1950, Professor E. C. Dodds discusses some aspects of the chemist's work, the possibility that he may find a simple, easily synthesized peptide to use in place of the scarce A.C.T.H., and the continued struggle to discover the secret of insulin which because it is such a stable, easily handled protein has been the most studied of all. There are useful by-products of this kind of research even when the main goal is not attained. "Synthalin" (decamethylene diguanidine) was an early attempt at a synthetic substitute for insulin which proved unsuitable for treating diabetes but fathered a whole range of diamidines valuable for kala-azar and trypanosomiasis (Yorke—*Brit. M. Bull.*, **2**:60, 1944). One strand in the development of British antilewisite was the study of the way arsenic is bound to sulphur in the keratin of hair.

It is perhaps in the handling of blood, however, that the chemist has so far had his greatest triumph from the clinician's point of view. The large-scale manufacture of dried plasma (Cohn—*Science*, **101**:51, 1945) and its fractionation (Janeway—*Adv. Int. Med.*, **3**:295, 1949) have yielded serum albumin for use in shock, -globulin which contains antibodies for passive immunization against measles and infective hepatitis, purified anti-haemophilic globulin, and concentrated Rh typing sera. The separation of fibrinogen and prothrombin from plasma has made available fibrin foam and film for various surgical uses; haemostasis, repair the dura mater, dressing of burns and superficial wounds, removal of small renal calculi, etc. All this is based on laboratory work by protein chemists. The possibility of using animal blood for human transfusions, as yet not satisfactorily realized, is nothing more nor less than a problem of protein chemistry.

Knowledge of protein chemistry enters, or ought to enter but is all too often ignored, in another field of medicine—clinical pathology. Not only is the plasma protein level routinely measured but also the erythrocyte sedimentation rate (which depends on the state of the plasma proteins), and blood tests for cancer (Annotation—*Brit. M. J.*, **2**:1213, 1950) or other diseases are often devised by clinicians. Many of the investigations of this kind would never be attempted, or would be planned differently, if their authors were more aware of modern physico-chemical knowledge of plasma proteins. The plasma contains a complex of many proteins, all sensitive to small changes of salt concentration, pH, and the actions of many reagents (including traces of soap). The clinician and the clinical pathologist have drifted too far from the biochemist in this field of knowledge. It is a gap which needs bridging. (*Brit. M. J.*, **2**:1267, 1950).

Cepharanthin in the Prevention of Tuberculosis

Hasegawa and Shinozuka (*Japanese J. Exper. Med.*, **20**:527, 1950) give in the following lines the summary of their observation:

From the results of the experiments obtained by various workers, we have adopted the following method of administration: on the grown-ups without past history a 0·1 mgm. pill daily for one week, rest the following week, and repeat, the so-called every other week daily administration method. But when there are complaints, as stated before, or light headache,

abdominal pain, loose bowels, feverishness, administration is stopped until such symptoms disappear.

In case of the positive tuberculin reactors, take into consideration all aspects and discontinue administration, after cepharanthin administration has been continued for 3-4 months, for 1-2 months, and repeat again in the same manner. In case of negative reactors who are exposed to chances of heavy infection cepharanthin is administered by the above mentioned every other week daily method and no rest period is allowed. In case of children the method being used is 0·05—0·1 mgm. by the above mentioned method.

In regard to the actual method of taking cepharanthin, the employees of the Chemotherapeutic Institute at present are given orally a 0·1 mgm. pill daily every other week. The employees all take a pill, which is in a bottle on the mess table, after the noon-meal. During the week that cepharanthin is supposed to be taken the mess servant serves plain hot water instead of tea and by this method the employees become accustomed to the habit of thinking that "on days when plain hot water is served cepharanthin is supposed to be taken." In general alkaloids are easily absorbed by tannic acid. Shinozuka revealed that by mixing boiled tea, tannic acid, etc. with cepharanthin *in vitro or* by the slide cell culture method the action of cepharanthin on tubercle bacilli is weakened. Of course we don't know whether or not the same kind of action takes place *in vivo too*, but we think it is better not to use tannin at the same time as cepharanthin. Therefore when cepharanthin is being taken the use of tea is forbidden 1 hour before and after administration and instead plain hot water is served.

It is not necessary to state that to obtain these results of experiments mentioned above, the enthusiasm and efforts of those connected with this work were needed. Through the co-operation of the 3 groups, the doctor who supervises the administration of cepharanthin, the person who takes the medicine, and the supervisor of the group, it is possible to attain the object. If any one of the 3 groups loose its enthusiasm for the project, the object cannot be attained.

In regard to the effect of B.C.G. by vaccinating the negative tuberculin reactors with B.C.G., it is said that the incidence of tuberculosis decreased to less than ½ and the death rate to less than 1/7. Even in the experiments by Dr. Matsumoto incidence of tuberculosis of the B.C.G. vaccinated group during 9 months was 1/2·7 of that of the control group as the number of negative tuberculin reactors in this country is far larger than the positive reactors, B.C.G. vaccination has a big significance. I believe it is quite appropriate to choose cepharanthin, which, as made clear by several workers, was able to decrease the incidence of tuberculosis to 1/9—1/14·0 in both the positive and negative tuberculin reacting groups, as one way of solving the tuberculosis problem of human kind.

Fluid Balance

Marriott (*Lancet*, **2**:753, 1950) at the Medical Society of London on Nov. 27, 1950 opened the proceedings with a lucid account of the subject, which he has done so much to advance. About a ton of fluid passes in and out of the human body every year, he said, and yet its water-content in health remains remarkably constant. About five-sevenths of the body water lies within the cells and the remainder is extracellular fluid (tissue fluid and plasma). Pitting œdema is usually evidence that at least a gallon of water has already accumulated in the tissue spaces owing to changes in intracapillary osmotic or hydrostatic pressure or to water and salt retention. Oedema due to hypoproteinæmia does not appear until the plasma-proteins are grossly depleted and the body's reserves of mobile protein exhausted. Once present, it takes a long time to go, even on a high-protein diet; powdered skimmed milk is a good source of protein, but the equivalent of a bathful of milk may be required. Dr. Marriott discussed the mechanical removal of œdema fluid, the indications for restriction of salt, the question of water intake, and the use of mercurial diuretics. Dehydration arises from insufficient intake of fluids or loss of alimentary secretions or sweat. If the fluid intake is inadequate, deficiency is essentially of water, and the osmotic pressure of the extracellular fluid rises; water passing out of the cells creates a sensation of thirst. If, on the other hand, the patient is losing bodily secretions—*e.g.*, by diarrhœa or vomiting—deficiency is of water and salt, and his dehydration will not respond to ingestion of water alone. Salt depletion, said Dr. Marriott, is often missed; yet the type of dehydration present is easily determined by simply asking oneself the question—how has it arisen?

Dr. N. R. Lawrie reviewed the work of E. A. Schafer and E. B. Verney on the role of the pituitary in the control of diuresis. Thanks to them, he said, it is now known that the posterior pituitary secretes an antidiuretic factor in response to changes in the osmotic pressure of the serum reaching it: this system is so sensitive that a change of 1% in osmotic pressure leads to a 1000% change in renal excretion. The hormones of the suprarenal cortex are also concerned in the retention of sodium chloride, and so of fluid; since more sodium is retained than chloride, the administration of these steroids may lead to alkalosis as well as œdema. In the discussion, Sir Heneage Ogilvie observed that soldiers are taught to manage on a very small water ration, and expressed the view that some of the mortality among the wounded during the war could be attributed to dehydration. Mr. Dickson Wright deprecated the excessive use of the intravenous route; when he went round his wards at night and took down the houseman's drips he felt that he was doing a useful piece of work. Dr. F. Avery Jones thought that the potassium ion was not receiving the attention it deserved. The traditional meat extracts, he said, are rich in this essential factor, but if the patient cannot take anything by mouth, potassium may be added to infusion fluids. Dr. Marriott agreed that potassium is an "up-and-coming" ion: but it can also be a dangerous ion, especially if renal function is poor.

A working knowledge of the theoretical background of fluid balance has become essential to every practising surgeon. The distinction between the two types of dehydration—water depletion and salt depletion—is particularly important, though both may of course be present at the same time. As Dr. Marriott pointed out, a consideration of the cause of the condition may tell us which form we are dealing with: on the chemical side, the serum-sodium level is the only certain guide, but estimation of urinary chloride will often help. With the invasion of the hospitals by pure science, pathology laboratories are being submerged with requests for estimations of unequal value to the patients. But the measurement of the urinary chlorides can frequently facilitate the rational treatment of postoperative vomiting without adding to the pathologist's burden; for Fantus's test, performed in the side-room,

will usually help in the decision as to whether saline is indicated or not. If the house-surgeon does this simple test himself, he need have no compunction in asking the clinical pathologist to estimate the serum-potassium in selected patients. Possibly soon many hospitals may have facilities for rapid estimation of sodium and potassium by flame spectrophotometry. Elaboration of data will make even greater the need for increased study and understanding by clinicians of the problems of fluid balance.

Digitalis Delirium

King (*Ann. Int. Med.*, **33**:1360, 1950) reports on five men between the ages of 55 and 73 and one woman aged 33 in whom delirium occurred in association with digitalis therapy. In each case the disturbance cleared entirely on withdrawal of the drug or reduction in its dosage. Deficiency in cerebral circulation may play a predisposing part, but one should not place too much emphasis on arteriosclerosis or age. Three of the author's patients had aortic valve lesions, probably on a rheumatic basis. The delirium seems to be due to drug intoxication rather than to changes in circulation or absorption of œdema products, in these cases. Preparations responsible for symptoms included powdered leaf of digitalis, lanatoside C and digitoxin.

Fatal Aplastic Anaemia after Chloramphenicol

Rich and others (*Ann. Int. Med.*, **33**:1459, 1950) report on a man aged 63 who had been treated for persistent pyuria with chloramphenicol (chloromycetin) for about three months. (The authors do not specify the exact dose). During this period the patient had no other medication, except occasionally creamalin (aluminium hydroxide gel). A generalized purpuric rash developed; there were several ecchymotic areas on his legs and hands, and petechiæ were noted in his conjunctivæ. The erythrocyte count on admission to the hospital was 4,100,000 with 11·5 gm. hæmoglobin. The leucocyte count was 5,250 with 21 per cent neutrophils and 79 per cent lymphocytes. The platelets were greatly diminished. Examination of the sternal marrow showed that it was acellular. Almost no myeloid elements were seen, and there were no megakaryocytes. Temperature rose to 103°F.; the patient had gross melena; new showers of petechiae appeared daily; the red blood cell count fell despite daily transfusions of 500 c.c. of blood, and death occurred 11 days after admission to the hospital. Diagnosis based on necropsy was aplasia of the bone marrow, moderate hyperplastic lymphadenitis, slight hæmosiderosis of the spleen and bone marrow, visceral evidences of shock, anoxia and sepsis, infarction of the prostate, mild chronic pyelonephritis, chronic and focal granulomatous prostatitis, adenocarcinoma of the stomach, foci of pulmonary anthracosilicosis, healed rheumatic endocarditis and generalized arteriosclerosis. The role of different physiological mechanisms in producing the resulting pathological picture is discussed. It is felt that chloramphenicol was probably responsible for the marrow aplasia since it contains a nitrobenzene radicle and is therefore potentially dangerous to the hæmatopoietic system. The occurrence of such a reaction makes advisable repeated blood cell counts when chloramphenicol is administered for long periods.

Fatal Gastric Haemorrhage after Aureomycin

Kleitsch (*Am. J. Digest. Dis.*, **18**:166, 1951) writes that aureomycin is enjoying a well earned popularity as an effective antibiotic for many types of infections. It is well recognized that it is only effective in acid solutions. Alkaline solutions of aureomycin deteriorate rapidly. A solution of aureomycin in water or saline solution has a pH 4·5. That the continuous administration of such an acid solution to a patient with a peptic ulcer might aggravate the ulceration seems to be a logical conclusion. The following case report apparently supports such an assumption:

A fatal gastric hæmorrhage, occurring as a result of peptic ulceration of the superior pancreaticoduodenal artery, in a patient who had received aureomycin for three weeks. The possibility of aureomycin acting as an aggravating influence on peptic ulcers is discussed. It is concluded that aureomycin should be administered with caution in the presence of peptic ulceration of the gastrointestinal tract.

Febrile Reactions to P. A. S.

Kreis and others (*Presse Medicale*, **58**:1285, 1950, Ref. *J. A. M. A.*, **145**:386, 1951) in reporting on the occurrence of febrile reactions to para-aminosalicylic acid in eight tuberculous patients receiving 10 to 18 gm. of the drug per day observe that an isolated sudden rise of temperature up to 104°F. occurred in three patients, suggesting erroneously the development of severe complications. Fever with impressive oscillations occurred in two patients. Progressive rise of temperature in the course of several days up to 104°F. was observed in two other patients, suggesting acute dissemination. Rise of temperature was associated with a morbilliform erythema and lasted for 11 days in one patient. These reactions occurred in patients of both sexes, with various forms of tuberculosis. The reactions occurred between the eighth and the thirtyeighth day of the treatment after the ingestion of 80 to 608 gm. of the drug. The amount of the daily dose does not seem to have been a determining factor. The fever responded to antipyretics, but the essential factor in diagnosis was the sudden and definite drop in temperature as soon as the para-aminosalicylic acid was discontinued. Immediate rise of temperature after readministration of the drug provided definite proof that the drug was the exciting factor. These febrile reactions showed intolerance to para-aminosalicylic acid.

Persistent Hypokalaemia

Kjerulf-Jensen and others (*Lancet*, **1**:372, 1951) in reporting a case of persistent hypokalæmia requiring constant potassium therapy write:

A woman of 33, who had had lymphocytic meningitis five years before, developed severe anorexia and muscular weakness after an attack of peritonsillitis and a six-month abortion. She was at first thought to have Addison's disease, but treatment with sodium chloride and deoxycortone produced severe cardiac disturbances and she was then found to have a very low serum-potassium level.

Her hypokalæmia and weakness lasted for six months and could only be relieved by giving potassium phosphate regularly by mouth, her condition relapsing whenever the potassium therapy was discontinued.

CURRENT TOPICS

THE DOCTORS' DIAGNOSIS

The world to-day demands more of its medical men than it has ever done before. They must still know how to cure, but they must also—and in ever greater measure—know how to prevent illness.

The tablet that relieves the headache does not remove the social insecurity that may have been its cause. There is nothing in a bottle that can prevent overcrowding or end poverty. There is no room for a new drainage system in the doctor's bag.

But there must be room, in the docotr's mind, for knowledge of what the social worker can do to help him and his patients, of what the sanitary engineer can achieve for their protection against disease. He must know when and how to call upon them and a score of other technicians and, above all, he must know how to work with them.

But does he? And if not, why not....and what can be done about it?

These questions form the background to a series of informal technical discussions held in Geneva during the Fourth World Health Assembly, and attended by doctors and public health specialists, nurses, sanitary engineers and other workers from all parts of the world, in which the health workers themselves have examined the system of training today in the light of world needs. They have not been sparing in their criticism.

Listen to Dr. Andrija Stampar, of Yugoslavia, speaking at the opening of the discussions:

"More often than not, it"—our present medical education—"still concentrates on training physicians to cure individual patients from actual disease and fails to impart to them a healthy outlook on the nation's life and the physician's role in society...."

"The medical student learns much and in the end knows little. As a rule he just reads and learns and does not actually study because he lacks the opportunity to observe for himself...." "One thing is certain. Institutions for medical education must rid themselves of the isolation which now often surrounds them and they must become centres of learning, science and skill that will train doctors more for collective than individual needs, doctors with more understanding of health questions in connection with the people's life and its social and economic conditions."

He pleaded that the high ideals contained in the W H O Constitution should be put before medical students as early as possible in their training. "There is no doubt," he added, "but that young, generous human hearts will appreciate them to their full value."

For the discussions the participants split up into three groups. The first dealt with undergraduate medical education, the second with specialist training in public health and the third with the training and use of that lowly but very important group of people known as "auxiliary personnel"....that is, such people as the medical assistants, with some training in diagnosis and treatment, the nursing and midwifery helpers, and the assistants to sanitary engineers.

Here are some of the things the experts had to say about....

1. The Undergraduates

To train a man capable of supervising the physical, social and mental well-being of the community within which he works, "considerable modification of the education of the potential doctor is needed".

There is at present "much emphasis on physics and chemistry....too little attention is given to such subjects as psychology, anthropology and sociology."

Nurses and doctors, since the aim is that they should work as a team, should have planned opportunities to study together the total care of the patient.

Students should get to know the surroundings in which the patient lives and works. They might, under supervision of a trained social worker, make home visits.

From the very first, by talks or by discussion groups, the mind of the student must be turned towards disease as a community problem.

2. Specialist Training in Public Health

This discussion concerned the problem of bringing into the public-health fields people who are already trained in various other professional fields....nurses, engineers, statisticians and many others, besides physicians.

It was felt that a good professional background was necessary, but there was sharp criticism of the existing basic medical and nursing education.

Of this, the group felt: "Its strong clinical emphasis and comparative lack of teaching in preventive and social aspects produce an outlook which may require considerable reorientation for those who proceed to post-graduate training in public health".

The group pointed out that one of the main difficulties of getting the professional man or woman into public-health work was that private practice brought in more money. Also, there was this difficulty: "To a high degree....those who have entered the professions from which public-health workers are drawn have been attracted by responsibilities to individuals rather than towards the community as a whole."

Public Health workers should be trained together so that the sense of team work is developed.... They should have an opportunity to do field work so that they may apply theoretical knowledge to practical problems....

And, finally, this criticism of present training: "In very few training courses is sufficient attention given to the principles of administration, the application of mental hygiene to the problems of public health, and proper understanding of the community and family".

3. The "Helpers"

The general conclusion of this group was that the auxiliaries, the "helpers", in half a dozen different fields of health work "are essential for the adequate development of health services in almost every part of the world to-day. Even in the highly developed countries some of them (nursing assistants, for example) must be regarded as having a permanent place in health schemes".

Some categories, especially assistants to registered doctors, should be replaced as soon as there are enough qualified people to meet all needs.... But, say the doctors "in selected categories careful consideration should be given to the desirability of providing means whereby the auxiliary can be promoted to a professional grade."

Despite the importance of the auxiliary workers in public health, the committee noted that the information available on

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their training and use was lacking in exact details and suggested that there should be further investigation and study.

To-day and Tomorrow

On the reports from which the above brief extracts are taken a general report was given by Dr. René Sand, of Brussels, in which he stressed that as a rule, "Throughout the world.... the medical profession, the hospital, the medical school and the teachers themselves work in isolation. Confined within the narrow limits of the individual practice of curative medicine, too many practitioners are heedless of the public-health experts and remain deaf to the voice of public opinion and that of the authorities who are calling upon them to work more actively for the preservation of public health...."

Declaring that "isolation must give place to the creation of close relations, co-ordination and synthesis", he drew this picture of the future:

"The training of the physician will be connected with that of nurses and every class of public-health worker. Moreover the medical student, the nurse, the social worker, to a certain extent the public health expert, the sanitary engineer and the statistician will form a team. The ideal arrangement would be for them to be trained in different sections of the same school and to receive the same basic education. An attempt must be made at defining the conditions to be fulfilled by auxiliary workers co-operating with fully qualified staff."

"The hospital will cultivate both preventive and social medicine, and will be closely connected with the faculty."

"The Faculty of Medicine will ask for the views and the aid of the sanitary services, social security organizations, medico-social agencies, the medical profession and the students themselves. It will ensure the co-ordination of teaching, or better still, its unification."

"The higher schools and the faculty will teach young people how to study, observe, think, pass judgment, how to approach marriage, the education of children and how to carry out their professional and civil duties."

"In a word, teaching will open the door to life and deal with life; preparing for the tasks of the physicians, the nurse and the health worker, which are pre-eminently human tasks, teaching will take man as its subject."

(*WHO Newsletter*—May-June-July 1951.)

INDIAN CULTURAL WORKERS ABOUT THEIR SOJOURN IN THE U.S.S.R.

On the 23rd of last June in Moscow arrived a delegation of Indian authors and art workers, headed by the playwright and poet Harindranath Chattopadhaya; and a delegation of Indian men of science, headed by the famous Bombay surgeon Dr. A. Baliga—on invitation of the Union of Soviet Writers and the All-Union Society for Cultural Relations with Foreign Countries.

The Indian scientists met the Soviet scientists, and visited leading scientific institutions of the capital. Members of the delegation visited the Lyubertsi Agricultural Machinery Factory, the "Java" Tobacco Factory of Moscow, factory welfare establishments and workers' homes. The guests visited also suburban Moscow Young Pioneer summer camps, and children's nurseries and sanatoria. Before leaving for the Kazakh Soviet Socialist Republic, with the cultural life of which the delegation headed by Dr. A. V. Baliga expressed its desire to acquaint itself, the delegation held a press conference at the All-Union Society for Cultural Relations with Foreign Countries on July, 13th, attended by representatives of Moscow's principal newspapers and magazines.

The head of the delegation, Dr. Baliga, expressed hearty thanks to the Soviet people for their warm hospitality, and on behalf of the delegation read the following statement:

"Our visit to Soviet Russia has been instructive and revealing. The phenomenal progress in the country in a little over 30 years requires seeing to be believed. It is a new world altogether, in this land which constitutes a sixth of the globe".....

The care of the children in this land is the most remarkable thing that we noted. Nowhere else in the world has it developed to such a perfect pitch. You go to Kindergartens, the creches, the children's schools, the libraries, the Pioneer camps or Pioneer palaces—you see what elaborate methods have been evolved for the all-important care of childhood. Their health is most carefully attended to and the best of physical and mental education given. Whether it is in science or art, the objective in the child care programme is to discover the aptitude, inclination and talent at an early age and afford all opportunities to develop it to the fullest extent. No wonder they grow to their full stature as scientists, technicians and artists, well equipped and proficient, eager to advance the cause of science and art in the land and step up progress and prosperity.

"Education and health programme in Russia are two other features you can be rightly proud of. In 30 years, you have attained 100 per cent literacy all over the vast country. Primary and (7-year) secondary education are compulsory and free and even the bulk of university students obtain merit stipends. Research is another subject to which the scientists have attached the utmost importance. Right from the undergraduate days, the student is initiated in research, so that, today, there are tens of thousands of brilliant and earnest scientists who, working in a collective way, are bending their energies to the solving of problems of the people and the country—an all-out effort to put the country on a sound economic footing: As a result of all this the people are well fed, adequately clothed and comfortably housed. There is no unemployment and the standard of living is high.

"Soviet Russia has given a lead to the world in working successfully a thorough-going scheme of socialization of the health services. Every man, woman and child is entitled to and gets free medical treatment. Preventive medicine received all attention and the general health of the population is excellent. Medical research is carried on in over 300 research medical institutes and the country is enjoying a prominent place on the medical research map of the world.".....

"We have been warmly received and treated with traditional lavish Russian hospitality. We have had an excellent opportunity of acquainting ourselves with a first-hand knowledge of peace and plenty in this land! We have moved about freely these three weeks, mixed intimately with your people and discussed at length various problems of interest! We carry with us all happy impressions of our sojourn in this great country and carry to our land your expressions of warm friendship and fellowship and your sincere sympathies and wishes in our aspirations. It shall be our earnest endeavour to acquaint our people with the true conditions in this country and strengthen your hands in the establishment of world peace. (Signed) Dr. A. V. Baliga, head of the delegation; Dr. A. C. Ukil, U. J. Bhatt, Indra Bhatt, Dr. G. Chinoy, members of the delegation.—(*Extracts from the News & Views from the Soviet Union*)

NOTES AND NEWS

THE THIRD COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

The Third Commonwealth and Empire Health and Tuberculosis Conference will be held at the Central Hall, London (opposite Westminster Abbey) on the 8th, 9th, 10th and 11th July 1952.

The Conference is open to all interested in preventive medicine, including the medical and veterinary professions, commercial and industrial executives, nurses, social workers, health administrators, members of public authorities, regional hospital boards, etc.

Intending delegates should send in their names to the Secretary-General, The National Association for the Prevention of Tuberculosis (NAPT), Tavistock House, North, Tavistock Square, London, W. C. 1, as soon as possible, so that further details may be sent to them.

8 ANNAS A HEAD TO FIGHT MALARIA

In Pakistan the leader of a WHO team worked out the cost of his campaign against malaria and kala-azar in Iswarganj Thana.

It came to 8 annas per head of the population (fifteen cents, U. S. currency). Further, the team leader computed, the amount of money lost to the men of Iswarganj Thana through being off work with malaria was enough to pay for all the expenses of DDT spraying.

To find out what local people thought about the campaign 360 families were interviewed. In eight cases out of ten the head of the family expressed willingness to pay—out of their own pockets—about 5 annas per person for the continuation of the malaria control work. That is they would be prepared to bear nearly two-thirds of the expenses of the campaign.—(*WHO News Letter*, May-June-July 1951).

2 ANNAS A HEAD TO STOP PLAGUE

In Mysore, India, the work begun by a WHO demonstration team is to be continued by local public health units.

Reporting on an interview with the Public Health Minister of Mysore, a WHO project leader says that the techniques used for plague control in Shimoga Town are to be adopted as routine in all plague-infected areas of Mysore.

A permanent maternal and child health clinic is to be constructed in Sagar and the project leader also believes that maternal and child health activities now in operation will be substantially continued.

Cost of the measures which cut short an epidemic of bubonic plague in Shimoga Town worked out at the equivalent of $0·035 per head of population. This is less than the local cost of two or three cigarettes.—(*WHO News Letter*, May-June-July 1951).

ANATOMICAL SOCIETY OF INDIA

The Anatomical Society of India was formed in Calcutta on Sunday the 20th May 1951. There was a conference held at the General Lecture Theatre of the Calcutta Medical College, attended by about 200 delegates and other medical scientists who came from various parts of India and Burma. It was presided over by Dr. M. N. Bose, Principal, R. G. Kar Medical College, Calcutta, and inaugurated by Dr. B. C. Das Gupta, Director of Health Services, West Bengal. Dr. P. Chatterjee, Professor of Surgery, Calcutta Medical College, welcomed the delegates as Chairman of the Reception Committee. He said that anatomy and physiology were the basic subjects on which the superstructure of the medical sciences was built up, and anatomy was the back bone of all surgery. The need for the formation of the Anatomical Society of India could not be overemphasised. Messages of goodwill from eminent anatomists of U.K., U.S.A., Sweden, France, Italy and the Far East were read out.

The President delivered a neat speech stressing on the importance of anatomy as a basic medical study and dwelling on the methods of better teaching of the subject and need for greater devotion to researches in anatomy. He also emphasised on the co-ordination of post-graduate work in different institutions, building up of good museums and reference libraries, co-operation with sister organisations in other countries and determination of Indian anatomical data and standards. He expressed his strong opinion against reduction of the present curriculum of anatomy in the preclinical course and observed that the pre-medical course in zoology should deal very much more thoroughly with vertebrates, specially mammals, than at present.

Dr. B. C. Das Gupta in inaugurating the Society said that its formation would go a great way to help investigation and teaching of anatomy. He assured that the anatomists were sowing to-day a seed that was destined to grow up in course of time into a big tree with all the benefits that such an institution could offer.

Dr. A. Ananthnarayana Ayer, the newly elected President, expressed the satisfaction that a step in the right direction had been taken by the anatomists of India.

Other speakers dwelt on the necessity of the birth of such a society and felt that the cause of anatomical science in India was going by default in the estimation of world scientists without such a scientific forum.

The office of the Society has for the present been located under the care of Prof. S. K. Basu at the Department of Anatomy, Nilratan Sarkar Medical College, 138, Lower Circular Road, Calcutta 14. The membership fee is Rs. 18/- per year and there is an admission fee of Rs. 3/- only. Payment of Rs. 250/- entitles one to become a 'Life' member of the Society.

NOBLE SACRIFICE FOR MEDICAL SCIENCE

Sri Mathuradas Trikamji, a distinguished graduate in History and Economics of Bombay University and ex-Mayor of Bombay died early in July 1951. He was a staunch congressman and followed the politics enunciated by his uncle Mahatma Gandhi.

As a result of devoted and whole-time service to serve the Bombay Corporation as its first citizen his health broke down which ultimately ended in Pulmonary Tuberculosis. During the last days of his illness on 17th June 1951 Sri Trikamji addressed a letter to Hon'ble Dr. Gilder, Health Minister of Bombay who gave him occasional advice regarding his treatment, mentioning "Medical service and medical fraternity have done abundantly for me. I therefore explicitly express my desire that when I close my life, dissection may be performed

on my body, lungs, heart etc. may be examined and presented for study and demonstration, preferably at G. S. Medical College. I hope you will not hesitate to give effect to this last request of mine to you." As per his last wish expressed to Dr. Gilder, post-mortem examination of his body was held at Seth G. S. Medical College, Bombay, and this gave valuable information as to how he successfully fought his illness for ten long years.

I. M. A. DOCTORS BENEVOLENT FUND

A special All-India Sub-Committee of the Indian Medical Association met at Delhi on the 29th July 1951 to scrutinise and deal with applications received through the provincial (or State) branches for relief and assistance to the doctors displaced from Western Pakistan. A sum of Rs. 8,963/3/- which was the outstanding balance in the Benevolent Fund of the I.M.A. was distributed as grants and loans to 15 doctors displaced from Western Pakistan. It was also decided to close the Benevolent Fund Account of the Association.

I.M.A. SELECTS TWO MORE DOCTORS FOR POST-GRADUATE TRAINING ABROAD

In continuation of the news regarding selection of the candidates by the Indian Medical Association for post-graduate training for Indian doctors abroad (*vide* August issue of J.I.M.A.) two more candidates noted below have been selected by the Association:—

1. Dr. I. S. Gupta of New Delhi for further training in E.N.T. at the Roosevelt Hospital in New York (U.S.A.).

2. Dr. Moinuddin Khan Sandozi of Hyderabad-Deccan for further training in Pathology at the Maimonides Hospital, Brooklyn in New York (U.S.A.).

MARRIED WOMEN DOCTORS SEEK PART-TIME WORK

The 2,300-strong British Medical Women's Federation decided at Nottingham in May last to ask health authorities to create more part-time appointments for married women who cannot carry on in full-time jobs.

The Federation's president, Dr. Doris Odlum, a consultant psychiatrist at two London hospitals, said after the conference:

"It takes between five and six years training and more than £2,000 to train a doctor. If a woman doctor gets married and has a family, a full-time job may be too much for her.

"Then all this skill and training is largely wasted.

"But otherwise she may not be able to find a part-time job, because of the reluctance of health authorities to employ her."

Altogether there are 6,000 women doctors in Britain, but it is estimated that nearly half of them are not engaged in medical work.

FOOD AND OTHER PROBLEMS OF INDIA

India's Health Minister, Rajkumari Amrit Kaur told members of the India League in London on June 13 last that they should not believe the exaggerated reports about food shortages in India.

She added, however, that in a country of over 300 million people, there are "sure to be some food difficulties and we are rationing more than other countries as far as the number of the population is concerned".

She said half a million people were dying from tuberculosis in India. There were only 6,000 beds but they hoped by the end of the year to have treble that number.

"We have a shortage of doctors and nurses necessary for the quick expansion of our services", she added. "The refugee problem has brought about thousands of cases of fever in its wake but we are slowly being able to get these refugees rehabilitated, and tonics and medicines are being sent out from Britain".

"We now have a Health Insurance Act and I would like to have all the doctors giving whole-time services to the State" she added.

Rajkumari Amrit Kaur said that in India they realised how much it meant to have the India League to interpret India to the people of Britain.

The High Commissioner, Mr. V. K. Krishna Menon, said India was not only a big country in itself but an effective part in a great continent. Asia might one day change the context of the whole worldmass of humanity, he added.—*P.T.I.R.*

MAKING MALARIA-INFECTED AREAS FIT FOR LIVING

A joint project of the World Health and Food and Agriculture Organizations of the United Nations, the Government of India and the Government of Uttar Pradesh will shortly start operation in Uttar Pradesh following an agreement reached in May last. The project envisages anti-malaria operations on a larger scale than hitherto on the one hand, and increased food production on the other. It aims at making an attempt, eventually, to develop an integrated approach for the raising of living standards and improving the condition of the population in the malaria-infested areas.

A WHO team is already working in Tarai Bhabar area with its base at Haldwani. The state Government are also conducting anti-malaria operations in the Kichha colonization area and in the Bilaspur tehsil of the Rampur district. Under the new agreement all these three areas will be wholly brought under the unified command of the WHO-FAO team, the objectives of the project being to undertake the control of malaria in the area of Tarai Bhabar, including Kichha tehsil and Bilaspur; to assist in the promotion of food production through the development of proper health services; and to develop the agricultural potentialities of the area and to render it more suitable for colonization purposes.

The agreement, which will work for two years provides for three more experts in addition to the three already working on the WHO team. These experts are a sanitarian and a public health adviser while a nutrition expert would be available in 1952 to assist in the proper utilisation of food by the population in the operational areas. WHO would be providing material for the operations. Over 73,000 lbs. of D.D.T. powder will be made available for the areas. The Government of India will be providing an anti-malaria officer, an entomologist and a number of other assistants. For general health work, the medical officer and other staff will be provided by the state Government.

CORRESPONDENCE

The Editor is not responsible for any views expressed by contributors

AGRANULOCYTOSIS FOLLOWING A COURSE OF NEO-ARSPHENAMINE INJECTIONS

Sir,—Agranulocytosis following arsenic therapy is not common. We came across a case recently which might be of interest to the readers:

A Persian (Irani) about 30 years old, received between 28-1-1950 and 18-3-1950, eight weekly injections of neo-arsphenamine, according to the following dose schedule: first dose, 0·3 gm.; second and third, 0·45 gm. each; fourth and fifth 0·6 gm. each; sixth and seventh, 0·75 gm. each, and the last 0·6 gm.; thus receiving a total of 4·5 gms. within a period of 7 weeks.

It may be stated here that all along his wife also received injections at the same time, but in smaller doses, at the hands of the same medical attendant.

One of us (M.S.H.M.) who was called in, on the night of 23-3-1950 to see this patient, found him in a very grave condition. His temperature was 102°F, with a pulse rate of 130 per min. and B.P. 120/70 mm. of Hg. whilst he was having profuse bleeding from the nose. The appearance and colour of the skin, mucosæ and nail-beds were extremely pale with practically no pink colour at all. There was no cyanosis, conjunctivæ were lemon yellow in colour. Oedema, lymphadenitis and venous engorgement were absent. A few petechial spots were seen on the face, and over the lower third of the left tibia, there was a distinct tender swelling of subperiosteal hæmorrhage.

He also complained of insomnia and had not slept for a few nights. The pulse was rapid and easily compressible, and the heart sounds were well audible with a loud hæmic murmur at the base. Examination of the chest revealed a few inspiratory crepitations at the left base. The liver and the spleen were not palpable, nor was there any lump felt in the abdomen. The central nervous system showed no abnormality; the patient was quite rational, and seemed to have a fairly good memory regarding the happenings of the past two weeks or so. No laboratory investigation was done, but even so and judging from the severe anæmia, epistaxis, faucial bleeding, a provisional diagnosis of aplastic anæmia or thrombocytopenic purpura following the use of arsenicals was made. The patient refused to be taken to the hospital, hence an injection of 500,000 units of penicillin and B.A.L. 2 c.c. was advised immediately, to be repeated after 6 hours.

Next morning on 24-3-1950 he was admitted in a private nursing home where he came under our joint care.

Soon after admission he complained of smart pain in the throat on swallowing and had a blood-stained vomit. His clinical condition was same as that on the 23rd. He was mentally alert, rational and co-operative though much more restless and apprehensive. Slow and continuous oozing of blood was seen from the gum margins and the nose. Many more petechiæ were seen on the mucous surface of the oro-pharynx, on the face and at the various sites of injections. His temperature was 101 F° with a pulse of 120 per minute and B. P. 120/80 mm. of Hg. Capillary resistance test was positive in 3 minutes at 90 mm. of Hg. Optic discs were clear but multiple large hæmorrhages were present in both retinæ. The examination of the chest revealed left basal crepitations. Immediate total haemogram revealed a state of severe anæmia (R.B.C. 0·9 mill. per c.mm.), marked leucopenia with almost complete agranulocytosis (W.B.C. 1200 per cmm., differential count of 200 cells showing poly. 1·5 per cent and lympho, 98·5 per cent); Hb. 30 per cent, reticulocytes less than 0·05 per cent and platelet count of 90,000 per c.mm.

Bleeding and coagulation times were enormously raised to 10 and 17 minutes respectively, icterus index was 10 units and the prothrombin time 10 sec. Urine analysis showed specific gravity 1020; traces of albumen; urobilinogen positive 1 in 50 dilution, otherwise, nothing abnormal was detected. It was decided to carry out daily blood and urine examination, the findings of which were tabulated for easy and comparative reference (*vide* Table below). His blood group group was Rh positive. Sternal puncture findings were considered but were not carried out due to the low condition of the patient.

TABLE SHOWING COMPARATIVE HAEMATOLOGIC PROGRESS OF THE CASE

	March 1950								*April 1950*
Date	24	25	26	27	28	29	30	31	1
R. B. C. (total) ..	0·9 mil	0·85 mil	0·8 mil	2·3 mil	2·5 mil	2·4 mil	2·3 mil	2·8 mil	Expired
W. B. C. (total) ..	1200	1000	950	1200	1100	950	750	300	
Hb% ..	30	28	25	28	32	40	42	48	
Reticulocytes % ..	0·05	..	..	0·04	0·045	0·05	0·04	0·75	
Platelets ..	90,000	..	50,000	..	75,000	..	80,000	..	
Diff. Count Poly. ..	1·5	1·5	0	0	1	1	0	1	
Lympho. ..	98·5	98·5	100	100	99	99	100	99	

Bleeding & Coagulation Time—Persistently above 10 to 15 minutes.
Icterus Index—Persistently above 10 units.
Prothrombin Times—Average 12·5 seconds.

The following treatment was decided upon which included among other things: daily fresh blood transfusions; pentose neucleotide injections 10 c.c. thrice daily; penicillin 1 million units to start with and 50,000 units 4-hourly and oxygen per intranasal catheter for 15 minutes hourly. Transfusions of whole blood were given in quantities of 350 to 400 c.c. and those given during daytime were well tolerated whereas all night transfusions caused rigors, often severe in character compelling stoppage of blood, the balance of blood given next morning was well tolerated.

Ancillary to the above, the following therapy was also carried out:—Vitamin B_1 100 mgm. daily; pyridoxin 200 mgm. twice a day; Heterohæmo injections 15 c.c. daily; bone-marrow powder two drachms thrice daily; Ledinac two drachms thrice daily; Sodium-thiosulphate 20 c.c. I.V. administered slowly once a day; B.A.L. was not given for the first three days in hospital after which one ampoule (2 c.c.) was injected intramuscularly daily. Holley (1947) recommends massive B.A.L. therapy but we could not decide whether the benzol derivative in B.A.L. may not itself react adversely causing further aggravation of leucopenia (agranulocytic), the very factor we were most justifiably keen to avoid at all cost. Diet was liquid in character with no restriction on total quantity in 24 hours.

The patient was in hospital for nine days after which his condition became very low. He was discharged on request. He expired within twelve hours of his removal to his residence. The bleeding and oozing and formation of petechial spots were checked after the second transfusion. On 1-4-1950, the day on which he took a grave turn, he complained of severe abdominal pain located over the left hypochondrium with marked distension. Surgical opinion was in agreement with us in considering it as a probable referred left diaphragmatic pain (the other possibility being an infarct in the spleen).

After discharge and during his last few hours he rapidly developed jaundice, but was conscious till about 30 minutes before death occurred. Within five hours of demise the body became bloated with marked extravasation in the dependent areas.

Hæmatologic progress:—The agranulocytic neutropenia persisted throughout with 0 per cent polymorphs on three occasions, and 1 per cent during the rest, the remaining cells being lymphocytes. On the 7th day total white cell count reached as low as 300 cells per c.mm. Bleeding and coagulation time remained persistently high and prothrombin time averaged 12·5 seconds.

Amount of albumin in the urine gradually increased upto 0·05 per cent and in the last two days a few granular casts appeared. Urobilinogen was throughout positive 1 in 50.

Discussion

It is of interest to note that the blood picture of complete agranulocytosis persisted throughout with a decreasing total white cell count upto 300 cells in spite of fresh whole blood transfusions which raised the total red cell count to 2·8 mil. and Hb. to 48 per cent.

The points to consider and for which we invite expert opinion are as follows:—

(1) Should B.A.L. have been given by us in much bigger dosage from the first day he was seen? Is there any direct reference in literature to support massive B.A.L. therapy in bone marrow suppression due to arsenical poisoning disregarding the risk arising from the benzol derivative in B.A.L. itself as previously mentioned by us.

(2) Could penicillin in much higher dosage have prevented the increase of pneumonia?

(3) How far streptomycin had a place in preventing pulmonary complications? We did give in the first three days in hospital 3 gms. of streptomycin.

(4) We could not do a direct bone-marrow transfusion from healthy donor. Are there any recorded cases of recovery attributable to this single factor in therapy?

(5) Would packed cell transfusion have been more advantageous than whole blood transfusion? We had no facilities at all to consider the former. Again, would a continuous day and night drip transfusion directly in the sternal or tibial bone marrow have been more worth while and profitable in our case?

(6) How many cases are actually recorded in world literature of a similar nature and what is the percentage of recovery? The agranulocytic neutropenia in our case was much more severe than in the case recorded by Dudley Hart and J. G. Humble in *Brit. M. J.*, **1**:1120, 1949. We are etc.

Poona.

M. S. H. Mody
K. H. Bharucha
H. B. Parelwala

ROLE OF TERRAMYCIN IN CHOLERA

Sir,—During these days of antibiotics. I was inspired to use this latest antibiotic by the apparent failure of other drugs and apprehending despair. I do not know of any reference on this subject but I would be very glad if some are suggested to me.

Here is a case report:—A child aged 2 yrs. 6 months was suffering from frequent passage of rice water stool with flakes of mucus. This was first noticed on the night of 18th May at abont 11-30 p.m. but the parents did not attach much importance to it. Next morning at about 9 a.m. I went to see the patient. On examination, I found that the child was dehydrated, the eyes were sunken and there was wrinkling of the fingers and toes. The child was restless. There was frequent passage of rice water stool with white flakes of mucus. The child did not pass urine since last night. The pulse was not bad considering the loss of fluid. There was no vomiting. The respirations were hurried and not much cyanosis was present. I gave the child 0·5 gm. of sulphaguanidine well crushed, every hour for 8 doses and injected 200 c.c. of glucose saline subcutaneously. This was followed by the administration of rectal saline 1 oz. every 2 hours which the child retained well. The result was dissappointing.

The dehydration increased and the child was prostrated. The volume and tension of the pulse went down considerably

and it could be felt with difficulty. The child was passing rice water stool almost unconsciously. The frequency of the stool increased and the child's condition became alarming. At this I decided to use Terramycin and stopped sulphaguanidine. The first dose of Terramycin 250 mgm. was administered orally and the second dose was repeated two hours after. At 9 p.m. when I went to see the patient I found that the fluid character of the stool had changed. The third dose of 250 mgm. was given at 10 p.m. and at 11 p.m. I noted the colour of the stool had become yellow. The fourth dose was repeated at 1 a.m. and 5th dose at 5 a.m. and at 5-30 a.m. the child passed about 6 oz. of urine. The frequency of the stool definitely diminished and the colour and consistency changed almost to normal. Restlessness disappeared and the child slept for 2 hours.

Thus I found that the administration of two doses of medicine brought a change in the consistency of the stool. The child tolerated it well and there were no toxic symptoms.

I cannot vouchsafe anything about its utility by simply using the drug in one case of cholera but I can definitely say that it is worth a trial in serious cases of cholera.—I am etc.

T. N. KHATTRY.

Calcutta

25. 5. 51.

CEPHARANTHIN IN LEPROSY

Sir—In this small clinical note we are reporting our observations on the effects of Cepharanthin (an alkaloid from Japanese plant) in leprosy.

Cepharanthin (Shino) is an alkoloid ($C_{37}H_{38}O_4N_2$) derived from the roots and stem of "Stephania Cepharanta" and "S. Sasaki". Both plants are members of the family Menispermaceat. It is available as tablets of 0·1 mgm. and as an injectable form containing 0·1 mgm. in one c.c. ampoules.

Five cases of lepromatous type of leprosy were treated with this drug. All the cases were bacteriologically positive.

They were given 0·1 mgm. tablet a day after mid-day meal and intramuscular injection of 0·1 mgm. twice a week.

Erythrocyte sedimentation rate, hæmograms and smears were examined once a month during the treatment. Observations made at the end of the six months are as follows:

(*i*) All the five cases showed clinical improvement. The nodules flattened out and the appearance showed a remarkable change.

(*ii*) No toxic effects occurred with the dosage we used, weakness, giddiness, and signs of gastro-intestinal irritation or deterioration in the blood picture were not noticed.

(*iii*) Appetite was greatly increased.

(*iv*) Sedimentation rate of erythrocytes showed progresssively better readings, and came down to 10 for one hour, at the end of six months.

(*v*) Bacteriological examinations of the smears did not show any change.

(*vi*) Reaction to the drug by the tissues as shown by slight increase in the erythema of the patches occurred within a few days of starting the treatment. But it subsided within two weeks' time. Skin reaction resembling erythema nodosum was not observed, in any case.

Comments—It is not known yet how the drug acts. As yet there is no evidence to show that this drug had a direct bactericidal action on M. lepræ.

Probably the drug acts by increasing the tissue resistance against the infection.

It is necessary to try this drug on a large number of patients for a longer time before we say something positive about it, but at present the results are encouraging.

We thank Ranbaxy & Co., Ltd., Delhi, for liberal supply of the drug free of charge for this clinical trial.—We are etc.

Sassoon Hospitals,

Poona.

S. N. RANADE, B.SC., M.B., F.C.P.S.

B. B. GOKHALE, M.B.B.S., D.V. & D.

"OPEN LETTER TO THE PROFESSION"

Sir,—I have read an "open letter to the profession" by Lt. Col. P. C. Dutta, Director of Health Services, Punjab, which appeared in your journal of May 1951. The theme of the letter was (1) that both the public and the State are showing greater and greater regard for the indigenous system of medicine and (2) that there must be carried on systematic propaganda and publicity by the Indian Medical Association in order to bring to the notice of the public the urgency of the scientific medicine for the benefit of the community thus creating an increasing demand for the same.

One has to agree with Col. Dutta's statement that the scientific medicine as practised to day in India is not popular enough, it is not looked upon with as much respect as it deserves. Undeniable is the fact that demand creates supply and propaganda creates demand hence propaganda is absolutely essential for creating demand for our modern scientific medicine. Now like all other forms of service medical service is a commodity whose demand undoubtedly presupposes propaganda. But what is far more important is something more real and more effective, it is the economic condition of the people. According to economics, demands are competitive as well as alternative. If a man's demands are not met in a costly market he will go unhesitatingly to a less costly place where his poor pocket permits him to satisfy his demands. Until modern scientific medical aid is so regulated either by the State or by the profession as to meet the demands of the poor people of this land, the less efficient medical aid of the indigenous system cannot be replaced. In the absence of State medical aid or help from the profession there is no other alternative except that of raising the income of the masses which I think is not in sight in the near future.

To look to the State for scientific medical aid for the masses is like aspiring for the moon. Medicine and Education are the two most essential and most neglected departments of the Government. The reason is not far to seek. They bring no money and little power directly to the State although they are indispensable for raising the production of the country. Government has not got enough money even if it wants to help the poor and at the same time, there is a lack of understanding on the part of these higher officials about the miseries of the poor villagers. Consequently, whatever little money is secured,

is spent in the cities where already plenty of scientific medical aid is available.

Now of aid by the profession. No doubt the I.M.A. can help the cause of scientific medicine. But the majority of the members of the I.M.A. prefer to settle in big cities, leaving the rest of the country to the care of those whom they themselves regard as incompetent to treat the people. If the village people therefore show scant sympathy for the scientific medicine, they can hardly be blamed.

A closer examination, however, reveals that the fault lies not even with the practitioner of scientific medicine. It lies in the mode of training imparted in the medical institutions. The training is very expensive, there are the fees, the books, and the standard of living, these three conspire in the same direction.

After admission the students acquire the prepossession that they belong to a special class, that they must thenceforth maintain certain standards of living and for that purpose they must in after life, settle in big cities as the poor pockets of the rural people cannot meet their demands. These prepossessions are evidently acquired by the trainees from their teachers. Both the teachers and the students forget the basic truth that a medical man is born for service and not for the administrative jobs. At present majority of the students come from rich and snobbish classes and after graduating themselves they like to serve their own kind. It is high time that expenses in the medical institutions should be cut down drastically and the qualification for admission should be two-fold like the two co-ordinates in mathematics, the first being academic distinction and the second being sacrifice or humanitarian spirit to serve.

The State should take the responsibility of training all the young medical aspirants at State expense. If paucity of funds comes in the way at least a certain percentage of admissions may be made at the cost of the State with the clear proviso that the trainees would be forced to settle in places where their services are most needed. If similar practice was prevalent for military medical aid there is no reason why rural medical aid should not follow the same. This is the only way to popularise this scientific medicine. There is no other way.

Col. Dutta has a double responsibility, in the first place as the head of the medical department of a state and secondly as a member of the I.M.A. He is in a position to recommend such basic changes in the method of admission of the candidates whereby all of them or at least a fraction of them give undertaking to settle in certain neglected places, thus raising the value of the scientific medicine in the eye of the pople of those areas.

Further, he can help in recruiting the right kind of teaching staff for the medical institutions. High academic attainments must be combined with a sense of service, and willingness for simple living in order to convert medical institutions more and more into centres for training medical missionaries rather than merely administrative officers for lucrative jobs and fat salaries. It is an open secret that Rs. 1600/- or even Rs. 2000/- per mensem is considered to be too low a bait to attract an efficient teacher for a medical college. Can such an attitude of masters of scientific medicine help in propagating our benevolent systems amongst the masses of this poor country of curs?

Instead of imitating the ennobling example of foreign missionaries we the medical practitioners as a class have been very quick in copying the British medical bureaucracy. The irony of fate is that now that we are politically free we hesitate to take off the garb of false prestige and false values.

To sum up, it needs no prophet to declare that unless medical aid is nationalised and unless the State patronises the modern scientific medicine, the poor people of our country cannot afford to come or even dare to come near the practitioners of this medicine. The only other alternative is that the practitioner of this medicine should be more sacrificing, less expensive and more easily approachable to the poor masses than at present. I am etc.

Jullunder City

17-6-51. RAM RAKHA.

"TREATMENT OF HERPES"

Sir,—After a perusal of the correspondence published in the July, 1951 issue of the Journal I.M.A. (p. 383), I tried vitamin C in two cases of herpes zoster and found the result marvellous. After the 1st injection the acute burning sensation and pain disappeared. I gave only 3 injections of Redoxon—2 c.cm. (100 mg.) and both the patients recovered quickly. Of course, I cannot compare the efficacy of vitamin C with that of chloromycetin or aureomycin as I could not try these drugs for prohibitive price. I hope I will be able to try them in future. In short the above treatment is worth a trial. Thanks to Dr. J. D. Vohra. Points of interest in this treatment are that it is cheap, safe and easy to carry out. I am etc.

Golaghat

31-7-51 C. D. CHOWDHURY.

APPROACH TO MEDICINE

(*Medical Education*)

Sir,—The fundamental principle of Medical Education has been the same now as it was many years ago. For in addition to acquiring a certain amount of medical knowledge the student should be taught to cultivate accuracy, observation and deduction and to reason carefully, so that he or she may be able to exercise a trained intelligence upon medical problems. Lord Horder truly said that if he were asked to give a list of the best books to read in medicine, he would invariably head it with Jevon's Primer of Logic. Because clear reasoning and the power of observation were the twin pillars that supported the whole superstructure of medical training, research and practice. Some attempt to be accurate in observation, some forbearance and clarity in the use of words and careful reasoning, these things constitute the scientific spirit, the spirit which animated the giants of medicine—Harvey, Hunter, Jenner and Pasteur.

Medical Education should mean much more than the acquisition of so many facts and theories; it should train the mind in such a way that it may be ready to take the initiative to adjust itself quickly to new situations, to apply in each case the principles, the routine, and the discipline of medical education. The years spent as a medical student are only an introduction to a study which must continue throughout professional life.

The curriculum is long and sometimes tedious, particularly the pre-clinical years. But they are only introductions.

Chemistry, Physics and Biology are taught as they are important. When you think of microscopes, x-ray etc. they are the products of Physics. Similarly, drugs that are used to cure diseases are the products of Chemistry, Biochemistry and Botany.

Students are apt to think that a great part of what they are taught in Anatomy and Physiology is quite unnecessary; yet these subjects have a very important bearing on clinical work. A preliminary knowledge of them is essential for understanding, the various methods of examining the patients, many tests that are carried out, as well as certain forms of treatment.

Anatomy and Physiology teach us the structure of the normal human body, the functions of the various organs, and the part they play in the life of the healthy individual. We must have a clear understanding of the normal before we can try to understand the symptoms and signs in a diseased state.

In many Universities a student is taught something of the elementary principles of medicine and surgery and learn certain methods of examination while he is still working at Anatomy and Physiology. This is an important progress in the right direction, as this elementary clinical instruction helps the student to appreciate more clearly the importance of Anatomy and Physiology, for the gap between them on the one hand and Medicine and Surgery on the other is thus bridged, and they are no longer treated as independent and isolated subjects of the curriculum and a new interest and insight in them is thus gained.

When the student starts work in the wards he is to take careful note or history of the patients. A good history will give an account of the patient's illness, his previous health and his present symptoms. It also includes clinical signs elicited after careful physical examination not only of the part that is principally affected but of the whole body. The taking of history is an important part of medical education. Careful systematic note-taking and a routine examination of the whole body in every case will teach a student method, develop his powers of observation and impress the details of cases in his memory.

The student should be encouraged to make his own diagnosis on the results of his careful examination in every case. He should be taught the points for and against his diagnosis. This will develop his power of reasoning and clear thinking. Diagnosis, after all, is a conclusion arrived at after a process of logical thinking based on fundamental facts learnt from histories and clinical signs and symptoms elicited by the art of examination. Thus is developed a deductive brain so essential in the practice of medicine. At first it may seem very difficult and often impossible, but as his knowledge increases he will be able to do so, more and more frequently and with greater success. One may make mistakes, there is no shame in it, specially if they occur after due care and thought. Furthermore, when a mistake is detected, if we try to find out where our reasoning or observation was at fault, we may learn more from our mistakes than from our easy and sometimes fortunate successes.

As far as possible the preliminary diagnosis should be based on clinical examination alone. It may be that other accessory methods of examination such as laboratory tests and x-ray or electrocardiograph may not be available in every place. Further by doing so one acquires keener powers of observation, reasoning and deduction. Laboratory tests and x-ray examination are not and can never be a substitute for careful clinical examination. As a student, one should attempt to diagnose and visualise what x-ray picture he may expect to find.

For a careful study of the patient, his body and mind should form the essential foundation. The training of our students should be directed above all to the cultivation of careful clinical observation and an understanding and appreciation of signs and symptoms. In this way only can they acquire that vital yet intangible faculty which we call clinical instinct. "Clinical instinct, born of observation, nourished by experience, and educated by deduction, must and always will remain one of the greatest and most important gifts a medical man can have."

True medicine should be taught at the bed-side and not in the lecture hall. One should study the patient and then study the books. "To study medicine without books is to sail on an uncharted sea, while to study medicine only from books is not to go to sea at all" (Osler).

When a newly-qualified doctor enters into general practice handling of patients may be an embarrassing thing for him because he does not know how to approach a patient. It is a pity that the medical student should have received so few hints on the attitude to be adopted towards patients, the way to approach them, to manage them and to obtain their confidence. On entering practice one has to depend on one's natural gifts and instinct. The teaching of bed-side manners is no less important than the teaching of medicine. The physician who in the approach to his patient cultivates sympathetic understanding, cheerfulness and confidence may be said to have acquired already the fundamentals of bed side or consulting room psychology. It helps the patient and it helps the doctor as well. A quiet cheerfulness of a physician is a great asset. The gloomy physician makes the sick man sicker. Sir Benjamin Brodie said that it was a good rule in the practice of an art, as in the common affairs of life, to look on the favourable side of the question so far as it was consistent with reason to do so. "A Physician's first entertainment of his patient should be gracious, cheerful and pleasing." But that cheerfulness does not mean that kind of aggressive, bouncing cheerfulness which can be so very irritating, especially to the sick man.

As for confidence, this can only come with experience and hard work, by learning from what one has seen and read and by thinking over the reasons for one's success as well as one's mistakes. Nothing is more ugly than conceit or vanity, but they are very different things from that "confidence" in which shall be one's strength.

A study of psychology and psychoneurosis may be a great help to the student to understand the sentiments of a patient.

We are etc.

Rangoon
7-7-51.

G. BHATTACHARYYA, B.SC., M.B.B.S.,
S. SEN, B.SC., M.B., M.R.C.P., F.R.F.P.S.,
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REVIEWS

GLAISTER'S MEDICAL JURISPRUDENCE AND TOXICOLOGY—By John Glaister, J.P., D.SC., M.D., F.R.S.E., Barrister-at-Law, 9th edition, 1950. Published by E. & S. Livingstone, Edinburgh, Pp. xi plus 755 with 234 illustrations, 88 in colour. Price 35*s*.

This is the ninth edition of this standard and well-known work. We have great pleasure to reiterate our opinion formed while we reviewed the book on a previous occasion that it is one of the most fascinating and authoritative text-books on the subject. This new volume is somewhat larger than its predecessor, is well produced, beautifully printed and is profusely illustrated with photographic illustrations, monochrome, line-drawings and coloured plates. Considerable new matters have been incorporated in the present volume. The details of Dobkin Baptist Church cellar Murder Case (1941-2) in which the superexposed photographic technique first used by Prof. Glaister and Prof. Brash in the Ruxton Murder Case for identification of the mutilated skulls was for the second time employed with remarkable success are included. Much new material has been added in relation to the liability of Hospitals and Nursing Homes, Post-Mortem Dissections, Finger-Prints, Medicolegal aspects of Artificial Insemination (absolutely a new and most knotty problem in legal medicine), Rh subtypes, Atomic Bombs and effects of Blasts. Chapters on Poisons and treatment of Poisoning in individual cases have been thoroughly revised and re-written, incorporating the latest treatment, relegating the chemical tests for poisons to an appendix at the end of the book—a very useful and important chapter alike to the medical jurist as well as to the practising physician. The sections on blood-grouping, which has achieved a great forensic importance, are clear and concise. One feels if one were sentenced to only one book on forensic medicine and toxicology, this would be the volume to choose for both the clinician and medical jurist will get authoritative details on any matter coming before them in their day to day work.

We congratulate the author for producing a book of this kind which should be on the shelves of every practitioner, whether in general or medicolegal practice, and every medical student in any part of the world.

S. K. B.

ENDOGENOUS ENDOCRINOTHERAPY INCLUDING THE CAUSAL CURE OF CANCER COMPENDIUM —By Dr. J. Samuels. Second edition, 1948. Published by Holdert & Co., Amsterdam, Pp. 539 plus xiv. Price not mentioned.

It is not every day that one meets an original work and it was very refreshing to read this book. The author, Dr. Samuels, defines his subject as "the study of the various hypophyseal dysfunctions and their resultant diseases". He puts forward his thesis that "the hormonal balance of the endocrine system, which mostly depends on the hypophyseal balance, is necessary for good health." Any disturbance of this balance leads to a large number of diseases. The author does not put forth a mere possibility but he presents the results of intensive study for more than a decade. As a result the book is a thorough one. The author does not stop with the suggestion, he has by means of spectroscopic study produced endocrinograms which are diagnostic of several diseases including early cancer. He has further evolved a method of treatment by electric radiation and hormonal drugs which from the number of case reports given, seems to be quite efficient. This book should be read carefully by all those who are specially interested in the early diagnosis of cancer and test the contention of the author.

N. M.

CANCER AS I SEE IT—By Henry W. Abelmann. Published by Philosophical Library, New York. Pp. 100, Price $2·75.

Dr. Abelmann has worked for a number of years on the subject of etiology of cancer and thinks that as those who are now engaged in cancer research are not approaching the subject with open mind, their findings are coloured with their preconceived ideas. Dr. Abelmann claims that after intensive research he is convinced that "fungus is the primary cause" of cancer. Then he discusses all the findings on etiology and concludes that the infective theory of cancer has not been tested with the care it demands. He then points out our inability to tackle the fully-formed disease and opines that "the only means we have to-day in combating this dread disease is to educate the public of the necessity of undergoing periodic examination. He thinks "A day set aside once a year will do much to keep the cancer peril before the public, it will promote and speed action." We fully endorse this.

THE MANAGEMENT AND MEDICAL TREATMENT OF CHILDREN IN TROPICAL COUNTRIES—By E. H. Vere Hodge. Ninth edition. Published by Thacker Spink & Co. Ltd., Calcutta 1, Pp. 412 plus ix. Price Rs. 16/-.

This book was originally written by Surgeon Henry Hurry Goodeve in 1844 for *mothers and doctors* and the sooner it is split up into two volumes the better. We have now excellent books on child rearing for mothers and books on pediatrics are not rare. In an attempt to fulfil these diverse aims this volume has satisfied neither the one nor the other. If the next edition is split up as suggested we might have two good books.

PHYSICAL EXAMINATION—By Dr. Viswanath Khanna, M.B.B.S., D.P.H., Asst. Professor of Clinical Medicine, Ayurvedic College, Banaras Hindu University, Published by Sri S. P. Khanna, Theosophical Society Kamachha, Banaras, with a forword by Capt. Sarat Kumar Chaudhuri, Ex-President, Indian Medical Association. Pp. 320, Price Rs. 6/-.

The book contains in lucid Hindi descriptions about case taking system by system, diagnosis, treatment and special examinations and prognosis. There are 24 illustrations showing different conditions for eliciting informations with a view to arrive at a diagnosis. Descriptions of different parts of the body have also been given. In the end has been appended a glossary of scientific nomenclatures and their Hindi synonyms. The book, it seems, will be useful to those who want to study medical science in Hindi. The get-up and printing of the book are presentable.

YOUR QUESTIONS

Correspondents should give their names and addresses (not necessarily for publication) and include all relevant details in the questions which should be typed. Questions of medical interest only will be acceptable for this section. They should be sent in a separate envelope marked "Your Questions". Questions of general interest will be published in preference. Lack of space precludes answering all the questions received.

Q. 1. *Is the human hair part and parcel of the body playing some important role in the general metabolism and conditioning of the system?*

2. *Hair has been provided by Nature throughout the universe to almost all the animal kingdom and is generally looked upon as an important appendage of the skin. Why then it need be taken as an exception in case of human beings?*

3. *Does the deprivation of hair (shaving) lead to any deterioration in the general metabolic processes? Has any serious experimental research been ever carried on? If so, where and with what results?*

4. *Does there exist any scientific literature on the study of the human hair? If, so, source of information may please be clearly noted.*

Ans. 1. The metabolic role of hair has not yet been elucidated although it is known that it may be concerned with sulphur metabolism of the body. Appreciable quantities of sulphur are contained in the hair. Whether this is in the form of a reserve store or in an excretory form is not known. In arsenical poisoning, arsenic is deposited in the hair and this may be a nature's way of eliminating arsenic from the body. Similarly hair may be a means of eliminating some metabolites from within the body.

2. Whether useful or not, hairs are removed or cut short for æsthetic purposes. Barring their mechanical 'covering' effect, probably they do not serve any other useful purpose, if they are maintained intact.

3. No deterioration in general metabolic processes is known to follow shaving of hair. Shaving of hair does not mean that the hair growing process is in abeyance. No serious experimental research has been carried on in this connection.

4. The following literature may be consulted:—

(*i*) Savill A.—The Hair & Scalp, 1945, pp. 62-74, Edward Arnold & Co., London.

(*ii*) Urbach & Lewinn—Skin Diseases, Nutrition and Metabolism, 1946, Grune & Stratton, New York.

(*iii*) Ormsby & Montgomery—Chapter on Chemistry and Physiology of the Skin in Diseases of the Skin, p. 45, 1948. Lea & Febiger, Philadelphia.

Q. 5. *What should be the treatment for persistent tape-worm infection in a child?*

Ans. The child should be treated with male fern extract and this treatment may have to be repeated at intervals of two months until all evidences of tape-worm infection disappear. Proper dosage is important. Sometimes carbon tetrachloride and oil chenopodium treatment as is scheduled for hookworm infections may be helpful in eradicating the disease. For dosage and method of administration any text-book in medicine may be referred to.

Q. 6. *What is the treatment for cases of persistent night blindness?*

Ans. The past history of the cases reported with the question reveals that prepalin injections proved useful. The patients were not given any vitamin A preparation orally. Prolonged administration of vitamin A (several preparations are available) is indicated and patients should be asked to take plenty of green vegetables and, if possible, additional quota of milk. It is necessary to investigate the liver functions in all cases where vitamin A deficiency recurs.

Q. 7. *What should be the treatment of maggot infecting ulcers on the scalp and the ear in children living in unhygienic conditions?*

Ans. Maggots in themselves do not have any deleterious effect on any wound. Baer (1931) after his observations in the field during World War I, introduced maggot treatment of osteomyelitis. He found that the wounds contaminated with maggots were extraordinarily clean and thought that the maggots as scavengers removed the dead tissue in the wounds and stimulated wound healing. Since then, however the antibiotic era has started and there is no reason to persist with maggot treatment. Penicillin injections should control the infection and maggots should be cleared as usual. The children living in "unhygienic conditions" should be hospitalised for better results.

Q. 8. *It is often seen in the 2nd or 3rd week of enteric fever in children and young adults that round worms come out through the mouth and irritate the throat. What is to be done at that time? Is it advisable to use santonin alone without any purgative at that time?*

Ans. Santonin is a toxic drug and should be reserved for children otherwise normal. A child suffering from typhoid does not require any treatment for ascariasis *during typhoid* fever. We had several cases who made uneventful recovery without santonin treatment.

ERRATA

In page 440 (September 1951 issue), column 2, para. 1, line 4, *in place of* 'conjugates' *please read* 'conjugase' and in line 5 *in place of* 'are' *please read* 'is'.
In page 444 (September 1951 issue), column 2, para. 3, line 3, *in place of* 'as' *please read* 'has'.

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Riboflavin (B_2)	0·5 mg.	Lipolytic Enzyme	5 grs.
Pyridoxine (B_6)	0·5 mg.	with other necessary adjuvants.	

INDICATIONS :

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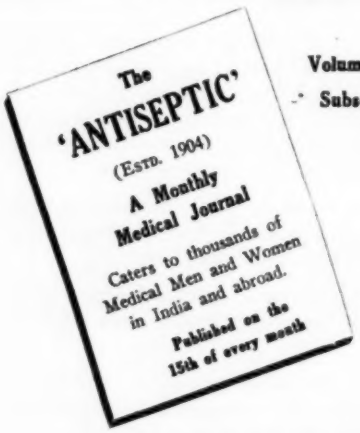

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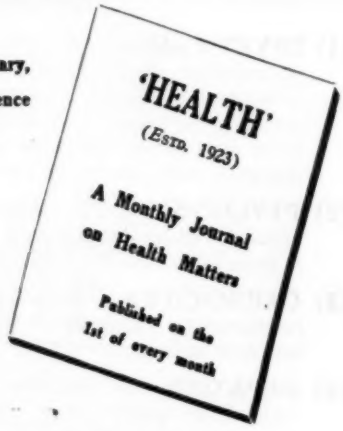

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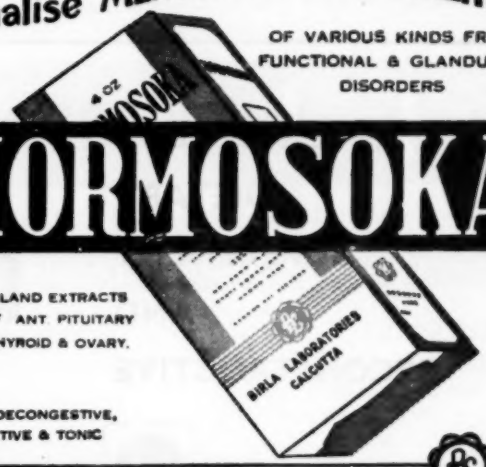

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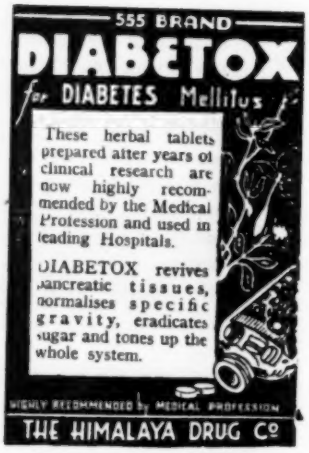
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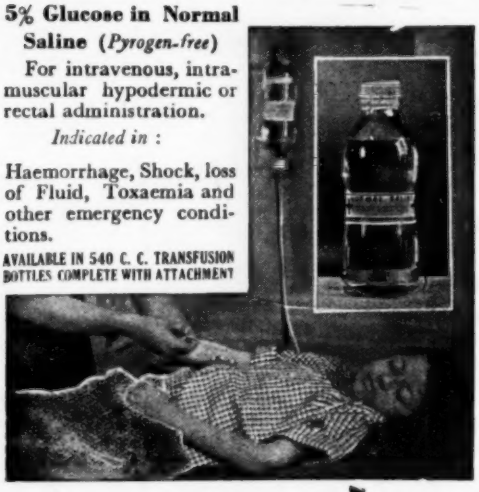

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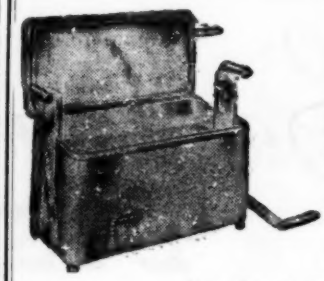

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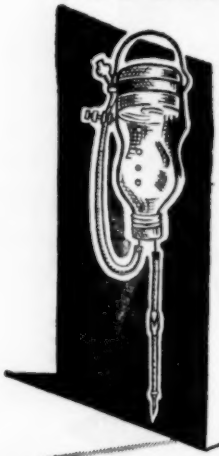

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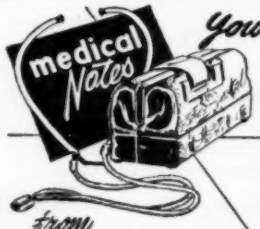

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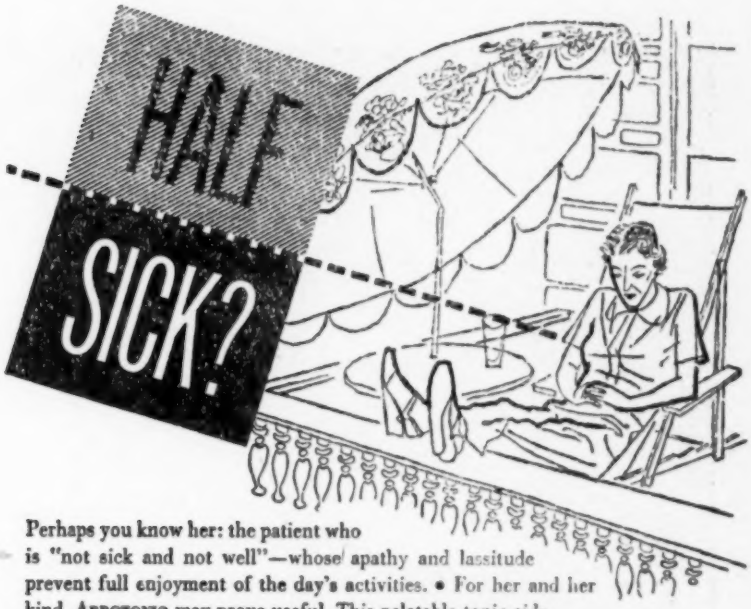

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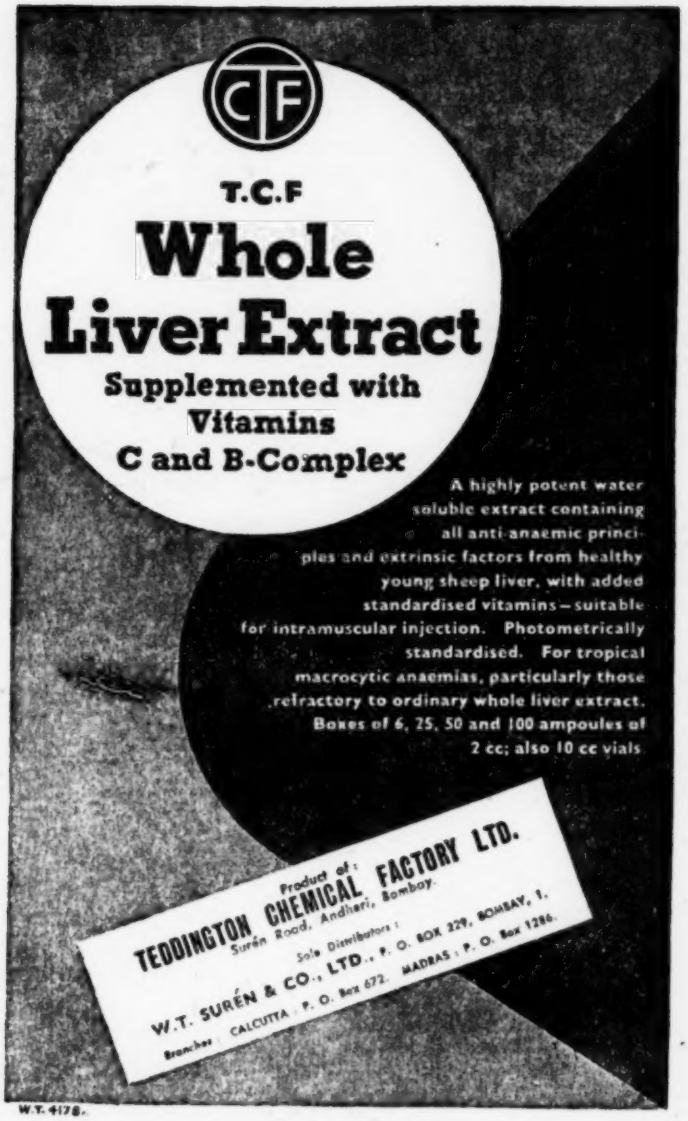
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